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REAUTHORIZATION OF THE FEDERAL GRAIN INSPECTION SERVICE

HEARING

BEFORE THE

SUBCOMMITTEE ON AGRICULTURAL RESEARCH AND GENERAL LEGISLATION

OF THE

COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

SECOND SESSION

ON

THE REAUTHORIZATION OF THE FEDERAL GRAIN INSPECTION SERVICE

APRIL 29, 1988

Printed for the use of the
Committee on Agriculture, Nutrition, and Forestry

U.S. GOVERNMENT PRINTING OFFICE

88-155 WASHINGTON : 1988

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

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REAUTHORIZATION OF THE FEDERAL GRAIN INSPECTION SERVICE

FRIDAY, APRIL 29, 1988

U.S. SENATE, SUBCOMMITTEE ON AGRICULTURAL RESEARCH AND GENERAL LEGISLATION OF THE COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY,
Washington, DC.

The subcommittee met, pursuant to notice, at 9 a.m., in room 332, Russell Senate Office Building, Hon. Kent Conrad (chairman of the subcommittee) presiding.

Present or submitting a statement: Senator Conrad.

Also present: Senator Exon.

STATEMENT OF HON. KENT CONRAD, A U.S. SENATOR FROM NORTH DAKOTA

Senator CONRAD. This hearing before the Subcommittee on Agricultural Research and General Legislation on the reauthorization of the Federal Grain Inspection Service will come to order.

I am pleased to hold this hearing today to consider the reauthorization of the Federal Grain Inspection Service. I want to welcome the witnesses for this hearing, and thank them for appearing today.

Grain standards and grain quality are critical issues to those of us concerned about agricultural exports and the health of our farm economy. Our wheat farmers depend on exports to sell over 50 percent of their production. The United States is also the largest feed grain and oilseeds exporter. It is important that we be able to compete with other major producers of farm commodities on the export market. While many factors, such as exchange rates, contribute to our success or failure in exporting farm products, quality is critical. Complaints by our foreign customers about poor grain quality will obviously lead to reduced exports.

FGIS, as the official inspection agency of our Government, which sets our grain standards, is under close scrutiny. I want to commend FGIS, and its Administrator, for the strong effort to address these issues. Careful implementation of the Grain Quality Improvement Act, as well as your self-initiated efforts to update grain standards and inspection methods, is appreciated. There have been problems in some areas—wheat protein measurement, for example—but many of these are now being cleared up. The Agency has been willing to accept the criticism and recommendations of the grain industry and Congress. As a result, our grain standards and

inspection system appear to be moving toward improving grain quality.

I sense that much more needs to be done. I am eager to hear the upcoming testimony of Dr. Phillips, from the Office of Technology Assessment, who has worked hard to analyze our current grain standards and inspection system, and determine whether they provide the kind of information our customers need. Dr. Phillips will include in his statement his preliminary conclusion on the changes we must make in our system to ensure quality grain. I also look forward to hearing the Administrator of FGIS, Mr. Miller, describe the ongoing changes in our official grain standards and inspection system, and his plans for more progress.

In addition, the comments of Cooper Evans, a former Member of Congress, now a producer and representative of a foreign customer, as well as the other panelists representing commodity producers, grain elevator operators and exporters, should provide much material for discussion and review. I only regret that time did not allow us to include another important contributor to grain quality improvements, the research sector.

I hope to make this hearing a dialog in which we can openly discuss how the Federal Government, the grain industry, and Congress can work together to improve grain quality. We are a great producing nation and a great marketing nation. Our efforts to retain and improve the quality of our agricultural production is of increasing importance to our economy.

The time is short, and we have much to discuss. So, let us begin.

[The prepared statement of Senator Conrad follows:]

PREPARED STATEMENT OF HON. KENT CONRAD, A U.S. SENATOR FROM NORTH DAKOTA

OPENING STATEMENT OF SENATOR KENT CONRAD, CHAIRMAN, SUBCOMMITTEE ON AGRICULTURAL RESEARCH AND GENERAL LEGISLATION, ON THE REAUTHORIZATION OF THE FEDERAL GRAIN INSPECTION SERVICE

I am pleased to hold this hearing to consider the reauthorization of the Federal Grain Inspection Service. I want to welcome the witnesses for this hearing, and thank them for appearing today.

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Time is short, and we have much to discuss. Let us begin.

Senator CONRAD. If the first panel would join us. Dr. Phillips, Cooper Evans, and Kirk Miller. I think we only have places up here designated for Mr. Phillips and Mr. Evans, but why don't you join us, Kirk, and then we will move you up as we proceed. Welcome. It is good to have you here.

Dr. Phillips, why don't you proceed, and then we will also hear from Cooper Evans, and then we will take some questions, and then we will proceed to Kirk.

STATEMENT OF MICHAEL J. PHILLIPS, PH.D., SENIOR ASSOCIATE/PROJECT DIRECTOR, FOOD AND RENEWABLE RESOURCES, OFFICE OF TECHNOLOGY ASSESSMENT, CONGRESS OF THE UNITED STATES, WASHINGTON, DC

Dr. PHILLIPS. Thank you, Mr. Chairman, and we thank you for inviting the Office of Technology Assessment to appear before you today to present some of the findings from our ongoing study on grain quality as they pertain to your hearing here on legislation regarding the reauthorization of the Federal Grain Inspection Service.

What I would like to do in terms of this testimony: you have our statement for the record, and I will just go through it, briefly, and highlight some of the major items that we think are important for these hearings.

I would like to focus on some of these findings and then look at some of the specific FGIS issues as they relate to these findings.

FINDINGS FROM OTA STUDY

The study, "Technology and Public Policy to Enhance Grain Quality in International Trade" was requested by Congress in the Food Security Act of 1985. We began the work in October of 1986, and we intend on completing the analysis by June of this year. It is a comprehensive study that analyzes four basic areas: one, grain quality attributes important to buyers; two, the U.S. grain system's ability to produce and deliver high quality grain; a third area, a comparison of the systems of major competitor countries with the U.S. system; and fourth, policy options, then, to enhance U.S. grain quality. From the first two areas of analysis, I would like to share with you some of the findings on the quality attributes important to buyers, the criteria for grades and standards, and the effect of Government farm programs on quality.

QUALITY ATTRIBUTES IMPORTANT TO DOMESTIC AND OVERSEAS BUYERS

I think we know that since the norms of quality vary, the quality attributes of importance to each industry, both domestic and overseas, were examined in this study. Surveys were prepared for wheat millers, corn dry and wet millers, soybean processors, and the feed industry. The analysis was conducted by examining the attributes required by each industry as they relate to either the attribute itself or the test used to measure the attribute.

I would like to share with you some of the findings from that survey in three important areas that are of interest to these hearings: one, the adequacy of present standards; two, the need for additional tests; and third, the importance of uniformity of grain quality between shipments over time. Charts to aid in explaining this data are attached to my prepared statement.

ADEQUACY OF GRAIN QUALITY STANDARDS

Very briefly, with regard to standards, the survey found that the current tests and the standards are important, but the relative importance of each test varies by customer, within an industry, for example, between domestic and overseas, and it varies by industry itself.

IMPORTANT ATTRIBUTES NOT INCLUDED IN STANDARDS

For example, in corn, between whether you are using it for feed, dry milling, or wet milling. But the current standards do not contain certain tests that are important to buyers. A number of additional tests regarding basically the areas of health, safety, and wholesomeness are routinely requested in contracts by domestic and overseas buyers.

WHEAT

For example, let's look at wheat. Domestic millers agree that at least five factors, in addition to those covered by the standards are important, no matter what the end-product may be. These are protein, hidden or dead insects, mycotoxins, pesticide residues, and bake tests. Overseas millers differed by region of the world in their response regarding important quality attributes beyond those included in standards. Nevertheless, four factors were common across all regions: protein, pesticide residues, falling number—a measure of amylase activity in grain—and tests for rheological properties of flour.

QUALITY UNIFORMITY BETWEEN SHIPMENTS

The area of quality uniformity between shipments, turns out to be an area that I do not think we can overstate its importance.

The grain system's ability to deliver grain consistently, that satisfies important quality attributes, is as important a factor as the attributes themselves. Domestic and overseas buyers in the OTA survey ranked the importance of uniformity between shipments very high. And the lack of uniform quality between shipments has been identified by all buyers as a major concern in receiving U.S. grain.

The importance of delivering consistent quality is evident by examining some of the current tests included in the standards. For example, overseas wheat millers indicate that quality factors most affected by lack of uniformity are moisture, test weight, dockage, and live insects. And in corn, moisture and damaged kernels were the most important factors regarding uniformity. The importance of uniformity between shipments for attributes and/or tests not currently found in the standards is also significant and it varies by industry. In the case of wheat overseas millers showed more concern than domestic millers for uniformity in the rheological flour properties. And in corn, the industry ranked the importance of the attributes that are important to their industry as also being important in terms of uniform delivery.

SURVEY SUMMARY

I think the varying quality requirements exhibited by these industries point out the need for the United States to become more aware of individual industry requirements if the goal is to produce and deliver high quality grain.

PURPOSE AND CRITERIA FOR GRADES AND STANDARDS

I will now move to the grade standards in terms of what we have found. I think everybody knows the history of the changes that have been made in grade standards between the years of 1916 and 1986. Apparently we did very little to resolve some basic problems and issues. But a relatively simple change in 1986, in the language of the United States Grain Standards Act, opened the door to a new era in the identification of quality as a means of efficient communication of information about value.

I think with the help of Congressman Cooper Evans, the 1986 Grain Quality Improvement Act was passed in November of that year, and one of the main things the act did was it specified four objectives that grades and standards should have.

First, to define uniform and accepted descriptive terms to facilitate trade; second, to provide information to aid in determining grain storability; third, to offer end-users the best possible information from which to determine end-product yield and quality; and fourth, to create the tools for the market to establish quality improvement incentives.

FGIS, for the first time, had a set of criteria on which to base changes in standards and to evaluate the numerous proposals for changes. Each of the four criteria provides a basis, now, for evaluating current standards and the recent efforts by FGIS to improve these quality measurements.

In my prepared testimony we provide our analysis of present standards judged by these four criteria. [See pages 13–16.]

I think, in short, standards do a good job of meeting the first objective; however, we have a lot of work to do yet in terms of the standards meeting the remaining three objectives.

I think changes in grade factors and factor limits should meet these four purposes, but I think we need to keep in mind that it is going to be almost impossible to find a set of standards that will meet all four objectives.

Somewhere along the line, to sort of create that, quote, perfect standard, we are going to have to look at compromises among some of the purposes, and among the various buyers and sellers who use these standards.

GOVERNMENT FARM PROGRAMS AND GRAIN QUALITY

The last area of analysis I would like to talk about is that of Government farm programs and grain quality, an area that, again, I do not think we can overemphasize in terms of its importance.

Two provisions of the farm programs are particularly important. One is the loan program and its associated premiums and discounts for quality differentials. The other is the target-price program, which results in higher prices associated with yield. To the extent there is an inverse relationship between yield and quality, then any program resulting in increased yields also has the potential to reduce quality. And in wheat, corn, and soybeans there is a biological tradeoff between yield and a major quality factor such as protein.

ANALYSIS FINDINGS

In the analysis that we conducted of the farm programs, we focused on wheat because of data availability, and the following are some of the areas which we found of how farm programs affect grain quality.

First, the administration of loan-rate values for wheat has changed over time. We had, back in the 1960's, two additional premiums and discounts that existed for quality besides those for grade. We had one based on sedimentation tests [see table 1], which is a test on quality, and another for variety discounts. They were discontinued in the early seventies.

Second, substantial differences exist between the loan-rate premiums and discounts relative to those of the market [see table 2]. Premiums and discounts for protein have always been less than market premiums and discounts, and this difference has been increasing in recent years. This leads to distortions, in that signals transmitted via the loan rate do not provide incentives for quality improvement and, because of these spreads, inferior quality wheat has a tendency to go to the loan program.

Third, a distinct trade-off exists in production between yield and protein. And results of our analysis suggest that in recent years this trade-off has been increasing—suggesting the opportunity cost of maintaining a certain protein level in terms of yield forgone is now increasing [see tables 3 and 4].

Fourth, the target-price program provides an incentive to increase yields because of a higher price per bushel [see tables 5 and 6]. From a producer perspective, the optimum protein level decreases as target prices increase. As target prices have gone up, the incentive, then, for higher yields, and therefore lowered protein levels, has resulted in pressure to increase protein premiums in the marketplace.

So given these findings, a combination of policy and institutional factors may prohibit producer response to quality incentives. Public information about the yield and quality consequences of particular

variety selections is not generally available. Further, the first point of receipt in the market channel typically does not apply premiums and discounts to individual producers for quality.

I think in commodities such as wheat and corn, farm programs potentially have important impacts on quality. In addition, they result in distortions when the loan-rate program is less than market premiums and discounts. The most important distortion is that the incidence of inferior quality is not reduced. And given the amount of interyear storage of grain in the United States compared with other exporting countries, this results in inferior quality grain being distributed over several subsequent years.

FGIS ISSUES

The last area of our testimony relates to implications of what this all means to FGIS, and briefly, just let me mention those quickly, and then I will be more than happy to answer questions.

NEED TO DEVELOP OBJECTIVE TESTING METHODS

I think there are four basic areas that we think there are some implications for FGIS.

First is the need to develop objective testing methods. This is an area that FGIS has been spending a great deal of time and we want to support the efforts that FGIS is doing in that area.

That becomes extremely important with regards to being able to distinguish class in wheat more accurately than we can do presently.

NEED FOR INFORMATION FOR DECISIONMAKING

Second is a need for information for decisionmaking. We have quite a need to understand better, information on the types and levels of infestation, pesticide residue, insect resistance to chemicals, et cetera, that relate to the health and safety of food.

FGIS, given the proximity that they have to grain, is in an excellent position to be asked to obtain more information than they are currently and also to be a central body for some evaluations of this data.

NEED FOR A NATIONAL TESTING POLICY

Third is a need for a national testing policy. We currently have, in the situation today, a system where besides what FGIS does—and FGIS does a very good job in terms of the kinds of instrument precision, equipment standardization, reference methods, et cetera—but however, when you go away from FGIS, in the way all other grain is inspected, particularly with another agency of USDA, that being the Warehouse Division of ASCS, they do not need to follow the same kinds of methods that FGIS does, and you have a situation where grain is not being evaluated the same way.

And that is a critical area that we think needs to be focused more on. Probably the best example of what we do have in this area in the United States is the role that the National Bureau of Standards plays, and we do not essentially have for grain measures, other than weight—we have no single national organization that exists for standardizing tests.

And we think that FGIS, in conjunction with the National Bureau of Standards, could be working to potentially provide such a service.

NEED FOR SCIENTIFIC INPUT ON FGIS ADVISORY COMMITTEE

The final area is that of the FGIS Advisory Committee. We think that there are going to be some critical issues facing FGIS and the Nation regarding grain quality. They are going to be technical in nature and they are not going to be easily resolved, and a consideration should be given to expanding, we think, the current committee, to include representatives from the research community, from universities with backgrounds in areas such as cereal chemistry, engineering, economics, and plant breeding.

And with that, Mr. Chairman, I will end my informal remarks, and at the appropriate time be glad to try to answer any questions you might have.

[The prepared statement, charts, and tables of Dr. Phillips follow:]

TESTIMONY OF DR. MICHAEL J. PHILLIPS,
SENIOR ASSOCIATE, FOOD AND RENEWABLE RESOURCES
OFFICE OF TECHNOLOGY ASSESSMENT
U.S. CONGRESS
BEFORE THE SENATE COMMITTEE ON AGRICULTURE, NUTRITION,
AND FORESTRY,
SUBCOMMITTEE ON AGRICULTURAL RESEARCH, AND GENERAL LEGISLATION

PREVIEW OF FINDINGS FROM OTA STUDY ON GRAIN QUALITY

April 29, 1988

Mr. Chairman and Members of the Committee:

Thank you for inviting the Office of Technology Assessment (OTA) to appear before you today to present some of the findings from OTA's ongoing study on grain quality as they pertain to your hearings on legislation regarding the reauthorization of the Federal Grain Inspection Service (FGIS) of the U.S. Department of Agriculture (USDA). I am Dr. Michael J. Phillips, Project Director of the study. Accompanying me today is Mr. David Orr, a member of our project team who is on leave from FGIS. He will participate in the question and answer session following the testimony. Today we will focus on the Committee's interest in findings of the OTA study to date that affect the legislation under consideration. First I will discuss those findings, and second I will look at specific FGIS issues as they relate to the OTA findings.

FINDINGS FROM OTA STUDY

The study "Technology and Public Policy to Enhance Grain Quality in International Trade" was requested by Congress in the Food Security Act of 1985. OTA began work on the study in October 1986, and it will be completed in June 1988. It is a comprehensive study that analyzes four areas: 1) grain quality attributes important to buyers, 2) the U.S. grain system's ability to produce and deliver high quality grain, 3) a comparison of the systems of major competitor countries with the U.S. system, and 4) policy options to enhance U.S. grain quality. From the first two areas of analysis, I would like to share with you some of the findings on quality attributes important to buyers, the criteria for grades and standards, and the effect of government farm programs on quality.

Quality Attributes Important to Domestic and Overseas Buyers

Grain quality, or more importantly, the attributes that constitute grain quality, is as varied as the kinds of grains and commercial processes used to produce finished products. The quality required can vary from perfect kernels used for seed, to highly damaged corn kernels used in fuel production, to cleanliness, health, and safety concerns. Differences in ethnic and cultural values, and varied consumer preferences means that what may be considered high quality to one user may not be considered high quality to the next.

Since the norms of quality vary, the quality attributes of importance to each industry were examined. Surveys were prepared for wheat millers, corn dry and wet millers, soybean processors, and the feed industry. The analysis was conducted by examining the attributes required by each industry as they relate to either

the attribute itself or the test used to measure the attribute.

Survey questionnaires were developed by OTA in cooperation with FGIS for each domestic industry, and with the aid of each industry's trade association, specific companies were selected to receive the questionnaires. Response to the mail survey was very good. OTA is confident of the validity of conclusions drawn from the survey.

An overseas wheat questionnaire was also developed by OTA and administered by U.S. Wheat Associates in 19 importing countries. All but one of the 19 countries responded to the questionnaire. In order to avoid duplication, corn and soybean questionnaires were not developed for importers since work was already being done in this area by several research groups. These groups provided data to OTA that were used in the analysis. I would like to share with you data from the survey in three important areas that are of interest to these hearings: 1) the adequacy of present standards, 2) the need for additional tests, and 3) the importance of uniformity of grain quality in shipments over time. Charts to aid in explaining this data are attached.

1. Adequacy of Grain Quality Standards

Official U.S. grain quality standards have been developed for wheat, corn, and soybeans. These standards establish certain tests that are used to describe quality and provide a basis for marketing grain. Tests conducted in each standard cover areas such as the type and class of grain; bulk density; degree of cleanliness; number of live insects; quantity of broken, shriveled, or split grains; moisture content; quantity of impurities including damaged kernels; and certain other attributes relating to the physical condition of the grain.

Both domestic and overseas buyers consider tests in the official wheat standards important, with the test for live insects being considered most important. However, domestic millers include limits for these tests in contracts more often than overseas millers, who generally purchase based on grade only without setting limits.

Each industry considers corn standards tests important but differences do exist on the importance of each test and on which tests have limits included in contracts. For example, moisture, test weight, and broken corn and foreign material received the highest rankings by the feed industry. Moisture, test weight, and live insects were considered the most important by dry millers, and damaged kernels ranked as the most important to wet millers.

A number of factors currently in soybean standards are not considered important by soybean processors. These include test weight and split grains. The test for live insects did not rank as the most important test, as it did for wheat and corn millers, since live insects are not normally a problem in soybeans. Instead, moisture and heat damage are considered the most important factors by domestic soybean processors. Overseas processors consider moisture and foreign material as the most important. Thus, domestic and overseas buyers have similar concerns regarding moisture, but heat damage is more important to domestic processors than to importers.

2. Important Attributes Not Included in Standards

The current standards do not contain certain tests that are important to buyers. A number of additional tests regarding health, safety, and wholesomeness are routinely requested in

contracts by both domestic and overseas buyers. The survey asked buyers to identify and rank the importance of these tests.

Wheat. - No one set of quality attributes - such as high versus low protein or strong versus weak flour - meets the demands for all wheat products. Domestic millers agree that a least five factors in addition to those covered by the standards are important no matter what the end-product may be: protein, hidden or dead insects, mycotoxins, pesticide residues, and bake tests. Overseas millers differed by region of the world in their response regarding important quality attributes beyond those included in standards. Nevertheless, four factors were common across all regions: protein, pesticide residues, falling number (a measure of amylase activity in grain), and tests for rheological properties of flour. The Far Eastern countries considered these factors to be of greater importance than the other regions of the world.

Domestic and overseas millers indicate that some additional tests beyond those in the standards are needed. Falling number and pesticide residue were the tests most often identified by both groups. However, overseas millers also specified tests for rheological flour properties, such as the farinograph and alveograph, as important additional tests while domestic millers indicate a strong preference for tests for hidden or dead insects.

Corn. - Determining important attributes beyond those measured in the standards for corn is industry-dependent except in areas regarding wholesomeness, health, and safety. Quality attributes vary by requirements of each corn industry. Items such as stress cracking, breakage susceptibility, and hardness are more important to wet and dry millers than to the feed industry. Attributes such as pesticide residue, mold, mycotoxin, and hidden or dead insects are important to all who mill corn.

Soybeans. - Agreement between domestic and overseas processors on the important quality attributes beyond those included in the standards is more evident in soybeans than in wheat or corn. The most important attributes are protein, oil, and free fatty acid content.

3. Quality Uniformity Between Shipments

The grain system's ability to deliver grain consistently that satisfies important quality attributes is as important a factor as the attributes themselves. Domestic and overseas buyers in the OTA survey ranked the importance of uniformity between shipments very high. And lack of uniform quality between shipments has been identified by all buyers as a major concern. The qualities of grain desired by buyers are generally available. However, quality fluctuations between shipments significantly influences buying decisions.

The importance of delivering consistent quality is evident by examining current tests included in the standards. Overseas wheat millers indicate that quality factors most affected by lack of uniformity are moisture, test weight, dockage, and live insects. And with the exception of dockage, these are the factors considered most important by domestic millers. In corn, moisture and damaged kernels were the most important factors regarding uniformity. The importance of uniformity between shipments for attributes and/or tests not currently found in the standards again varies by industry. In the case of wheat, overseas millers showed more concern than domestic millers for uniformity in rheological flour properties. Except for mycotoxins, each corn industry

ranked the attributes that are important to their industry as being important in terms of uniform delivery. Uniformity between shipments will become more important as processing technologies become more sophisticated and as additional end-uses are found for each grain.

4. Survey Summary

The OTA survey has identified the quality concerns of each industry using wheat, corn, and soybeans. Wheat, by its very nature, is the most complex of the three grains for defining quality because of the vast array of products and processing technologies used to produce those products. Corn is somewhat less complex in that fewer products are produced and quality concerns can be traced to the individual corn industries. However, the quality required by one corn industry is not necessarily important to others. Soybean quality is the least complex because only two main products (oil and meal) are produced and only one industry is involved.

The varying quality requirements exhibited by these industries point out the need for the United States to become more aware of individual industry requirements if the goal is to produce and deliver high quality grain. The United States has developed the reputation as a supplier for almost any type and quality of grain desired by buyers. In order for the Nation to become a consistent supplier of quality grains, it must become more quality-conscious. To accomplish this, the United States must not only understand the specific quality requirements of its customers but also become more aware of the dynamic issues surrounding the qualities required by the marketplace. Areas such as technological advancements in processing technologies, government policies, customer preference, and new end-uses for grain all influence customers' purchasing decisions and their definition of quality at any point in time.

Purpose and Criteria for Grades and Standards

Since the beginning of Federal regulation of grades and standards in 1916, the official purpose has been to provide uniform standards for promoting and protecting grain moving in interstate and foreign commerce "so that grain can be marketed in an orderly and timely manner and that trading in grain may be facilitated." It has seldom been recognized that the lack of an economic justification in that directive has been the cause of much of the difficulty in arriving at a consensus on grades, grade factors, and standardization in the grain industry. And the many changes to the United States Grain Standards Act (USGSA) between 1916 and 1986 apparently did little to resolve the basic problems and issues. A relatively simple change in 1986 in the language of the USGSA opened the door to a new era in the identification of quality as a means of efficient communication of information about value.

The 1986 Grain Quality Improvement Act passed by Congress on November 10, 1986, specified four objectives for grades and standards:

1. to define uniform and accepted descriptive terms to facilitate trade;
2. to provide information to aid in determining grain storability;
3. to offer end-users the best possible information from which to determine end-product yield and

quality; and

4. to create the tools for the market to establish quality improvement incentives.

FGIS for the first time had a set of criteria on which to base changes in standards and to evaluate the numerous proposals for changes. Each of the four criteria provides a basis for evaluating current standards and the recent efforts by FGIS to improve quality measurements. The following is OTA's analysis of present standards as judged by these four criteria.

1. To Facilitate Trade

Almost any set of factors can meet this criteria. It is important that grain standards be grouped into a relatively small number of categories to make buying, selling, and classification efficient and inexpensive. Trade is facilitated by a small number of grades determined by a minimum number of factors.

The factors making up the current grades are for the most part easily measured and provide a basis on which buyers and sellers can communicate price and appropriate discounts. Since almost any set of factors and grade limits can be handled equally well by the grain industry as long as they are universally accepted, recent changes by FGIS have made little improvement on this criterion.

The technology and terminology for measuring the current factors have been in use long enough to make grain trading on these factors and grade limits extremely efficient. Domestic and international contracts have been written using this terminology for many years. Marketplace trading is readily handled with a minimum of specification. These terms are adequate for basic contracts and quotes in the future's market as well as in international trade. Millions of bushels change ownership with a simple phone call basing price on the numerical grade.

2. To Aid in Determining Grain Storability

The factors that influence storability of grain have been well documented by many scientists dating as far back as the early 1900s to the grain storage studies done by Dr. Duvel of USDA. These factors are moisture, temperature, air flow, mold, and insect infestation.

Current tests for factors contained in standards provide little information on direct measures of storability. Moisture content is provided in terms of averages, but it has been demonstrated that the range of moisture among individual kernels may be more important than the average. The standards identify damage, but this is an arbitrary determination of a stage of mold development and storage deterioration that does not provide information on how much longer the grain may be stored before it goes out of condition. The total damage factor does not show how far deterioration has progressed or the rate of deterioration. Numerical grades alone certainly provide no information on storability, and the factors of foreign material, test weight, damage, and average moisture are indirect indicators at best.

Changes in grading practices and standards have done little to improve measurement of storability since the 1920s when Dr. Duvel suggested acidity as a measure of storage life and an indication of mixtures of old and new crop grain. Most measures for storage life today are based on laboratory procedures. No rapid commercial test is available to provide a quick indication of the stage of deterioration in a lot of grain or the time

remaining before it will go out of condition.

3. To Measure Value in Processing Products

Because most grains are used for more than one purpose, it is not a simple matter to identify those characteristics that influence value. The nutritional composition, starch content, and recovery rate of corn and the milling and baking characteristics of wheat are all end-use properties that are important to processors. Yet few of these can be converted directly to measures of physical or chemical properties of the raw grain. Research in recent years has identified some factors that relate to value that can be measured in the commercial market channel. For example, hard endosperm corn provides a higher yield of flaking grits. Obviously, high oil and high protein soybeans provide higher yields of oil and soybean meal. Breakage susceptibility tests identify the ability of corn to withstand handling without increasing breakage. Many tests are available that indicate milling and baking characteristics of wheat and are frequently used in laboratories in the United States and Europe — for example, falling number, farinograph, hardness, and baking tests. However, agreement does not exist within the industry that these attributes are always a clear indicator of value.

Current standards do a poor job of meeting the criterion of end-use value. Soybean standards include little indication concerning oil and protein content. New varieties of wheat have diminished the effectiveness of class and grade in evaluating flour and baking characteristics of wheat. A numerical grade in corn is often unrelated to its feeding value or yield of starch. In general, those characteristics of the raw grain most closely associated with value of products derived are not currently in standards. Purity and cleanliness in terms of foreign material percentages, or percent of other grains, provides one of the few indications of value in the current standards.

FGIS activities in the last few years have moved toward improving the measurement of end-use value. For example, even the simple step of rounding dockage percentage to the nearest one-tenth in wheat gives a clearer indication of the amount of grain versus nongrain that is being purchased. Compared with the previous method of rounding down to the nearest half-percent, the change better reflects true value. FGIS has also taken steps to differentiate damage in soybeans more critically. The change in the interpretive line slides has been linked to the level of free fatty acid, which is in turn a direct measure of the quality of the oil derived from the soybeans. Progress therefore is being made toward finding better measures of value.

Additional measures are available that have not been incorporated into the standards. Industry as a whole does not agree that these measures are sufficiently accurate and reliable to be introduced. Continued commercialization of measures of breakage susceptibility in corn and soybeans, of chemical properties of all three grains, of new measures of baking properties and classification of mixed varieties of wheat, and of rapid measures of oil and protein in soybeans are all candidates for incorporation into the standards or at least to be made available as information.

4. To Provide Market Incentives

Measurement of grade or quality factors that result in price differentials in the market provide an incentive for each point in

the market channel to make decisions to improve quality and avoid the discounts. This incentive works back through the market channel to producers who may change harvesting, drying, and storing practices, or may select different varieties. Preference for varieties with certain quality characteristics will in turn be transmitted to plant breeders and generate improved varieties in the future. In a competitive market, profit is a strong driving force in the decisions of firms, whether they be exporters, individual elevator managers, producers, or plant breeders. While the market itself sets the incentives in terms of prices and price differentials, the standards are not neutral in this scenario. For example, an incentive exists for farmers to select varieties of corn that will weigh at least 54 pounds per bushel in order to avoid market discounts. This incentive to the producer has translated into incentives for the plant breeders, who have spent significant research funds to develop varieties that will produce a high-test-weight corn under normal conditions.

Current standards provide incentives in several ways. For example, No. 2 corn allowing 3 percent BCFM (broken corn and foreign material), in conjunction with the market practice of paying top price for No. 2 corn, gives farmers an incentive to incorporate 3 percent BCFM in their deliveries. By the same token, elevator managers have an incentive to clean or blend in such a way as to deliver 3 percent BCFM throughout the market channel. Any shipment containing 3 percent or less of BCFM is a lost profit opportunity. Shipments containing more than 3 percent BCFM will usually receive a discount.

The reverse of this coin is the lack of incentive for improving quality on those characteristics omitted from the standards. With no price differential for soybeans with high oil and protein, farmers have no incentive to select varieties that will represent increased value to the processor. Yield becomes the primary and in most cases the only criterion on which to select the variety to be planted. A second example is the drying temperature of corn. Although most corn processors object to the use of high temperatures during drying, the market does not differentiate between corn dried at high and low temperatures. The premiums paid by a few dry millers for low-temperature-dried corn indicate that farmers do respond to these incentives when they are offered. Today, incentives are not offered by means of the standards, but by means of contracts in localized areas. It is especially difficult for buyers who are some distance from the production point to obtain the qualities they desire when those qualities are not incorporated in uniform standards and terminology.

Recent FGIS efforts have had little effect upon the incentives within the market channel. The removal of moisture as a grading factor reduced the number of factors on which blending was required when purchasing on grade only, but the market still generates income from blending wet and dry corn. The change in rounding procedures for percent dockage in wheat removed the incentive to blend dockage just below the next higher break point. However, the number of grades and the steps between grades have not been significantly altered, and incentives and disincentives still fall short of the ideal.

5. Integrating the Four Purposes of Grades

Changes in the grade factors or factor limits should meet

the four purposes of grades. But only certain alternatives will contribute to all four purposes, and it is likely that conflict between the purposes can develop. For example, complex and lengthy tests for measuring end-use value will slow the inspection process, increase marketing costs, and thereby detract from the purpose "to facilitate trade." As a second example, incentives are best created by a continuous discount schedule on each factor, starting from zero. But a zero base requires each buyer to specify factor levels in the contract. Numerous contract specifications increase the number of segregated lots and reduces the interchangeability of shipments. Increasing the amount of information available to users increases the difficulty of merchandising uniform lots.

The "perfect standard" that optimizes all four purposes may not exist. The final solution will be a compromise among some of the purposes (e.g., sacrificing complete information for all users in order to facilitate orderly efficient marketing) and among the various buyers and sellers who use the standards.

Government Farm Programs and Grain Quality

Farm programs have played an important role in U.S. agriculture since at least the mid-1930s. These programs provide constraints and incentives that are transmitted throughout the production and marketing system and consequently may have an impact on the quality of grain produced and marketed. Two provisions of farm programs are particularly important. One is the loan program and its associated premiums and discounts for quality differentials. The other is the target-price program, which results in higher prices associated with yield. To the extent there is an inverse relationship between yield and quality, then any program resulting in increased yields also has the potential to reduce quality. And in wheat, corn, and soybeans there is a biological trade-off between yield and a major quality factor such as protein.

An analysis of the impacts of farm programs on grain quality was conducted as part of the OTA study. The analysis focused on wheat because of data availability. Yet the principles can be applied to any grain in which commercial premiums and discounts exist for particular quality characteristics, and in which measurable trade-offs exist in production between yield and quality. These conditions exist in the case of wheat and the analysis focused on two classes: hard red spring wheat, predominantly grown in North Dakota, and hard red winter wheat, in which Kansas is the leading state.

Analysis of the loan-rate program and the target price program yielded these findings:

1. The administration of loan-rate values for wheat has changed over time. In the 1960s two additional premiums/discounts existed for quality besides those for grade — one based on sedimentation tests (table 1) and another for variety discounts. They were discontinued in the early 1970s.
2. Substantial differences exist between loan-rate premiums and discounts relative to those of the market (table 2). Premiums and discounts for protein have always been less than market premiums/discounts, and this difference has been increasing in recent years. This leads to distortions in that signals transmitted via the loan rate do not provide incentives for quality improvement and, because of these

spreads, inferior quality wheat have a tendency to go to the loan program.

3. A distinct trade-off exists in production between yield and protein. And results of this analysis suggest that in recent years this trade-off has been increasing – suggesting the opportunity cost of maintaining a certain protein level in terms of yield forgone is increasing (tables 3 and 4).
4. The target-price program provides an incentive to increase yields because of a higher price per bushel (tables 5 and 6). From a producer perspective, the optimum protein level decreases as target prices increase. As target prices have gone up, the incentive for higher yields and therefore lowered protein levels has resulted in pressure to increase protein premiums in the market.

Given the above findings, a combination of policy and institutional factors may inhibit producer response to quality incentives. Public information about the yield and quality consequences of particular variety selections is not generally available. Further, the first point of receipt in the market channel typically does not apply premiums and discounts to individual producers for quality. And finally, the range of protein or quality choices available to producers from the plant breeders is narrow and may preclude adjustment.

In commodities such as wheat and corn – in which the loan-rate program is an important feature and where trade-offs exist between yield and a major quality factor such as protein – farm programs potentially have important impacts on quality. In addition, they result in distortions when the loan-rate program is less than market premiums and discounts. The most important distortion is that the incidence of inferior quality is not reduced. And given the amount of interyear storage of grain in the United States compared with other exporting countries, this results in inferior quality grain being distributed over several subsequent years.

The target-price program has longer-term impacts. Incentives are transmitted throughout the production sector to increase yields. The transmission of signals from producers to plant breeders and ultimately to variety development is a long, dynamic process. The target-price program causes underlying pressure for reduced protein levels in the market and thus fundamental pressure on protein premiums. Limited response has existed in the past to variability in protein premiums. This could be due in part to constraints of technology and variety development, and in part to variety-release programs that have been given persistent signals over the years to select for increased yield.

FGIS Issues

Based on OTA study findings discussed above and other work completed for the study, OTA has identified four issue areas that relate to FGIS.

1. Need to Develop Objective Testing Methods

Currently, many tests contained in the standards are subjective, such as damaged kernels and odor. These tests are difficult to standardize and maintain levels of expertise and are candidates for more objective testing methods. In addition, tests that measure the range in composition instead of the average will be needed. For example, moisture is a critical factor, especially for corn, in determining storability. Many groups have identified

problems resulting from blending wet and dry corn and the inability to determine the range in moisture. Other factors may well be subjected to this scrutiny.

Another important objective test is the need to distinguish class in wheat more accurately. Traditional morphological traits are no longer adequate for visually determining wheat class. Buyers were asked in the OTA survey whether wheat class is a good indicator of quality. Overseas and domestic millers indicated that wheat class is currently not a good indicator of wheat quality. FGIS, through the Wheat Classification Working Group, has been researching this area.

2. Need for Information for Decisionmaking

To make good decisions requires knowledge of all the pertinent facts. Concerns about health and safety in food along with knowledge of crop conditions, qualities available, and quality areas demanding attention can only be identified through expanded use of information-gathering sources. And FGIS is at the forefront in many of these areas. For example, all export shipments are graded by FGIS. And FGIS collects and publishes information on the quantities and qualities of grain shipped. In addition, several trade associations, especially in wheat, collect information on the quality and quantities of grain available. However, no central body is responsible for directing the type of information that will be collected, nor is there any central direction for consolidating information for evaluation. Many new areas such as health and food safety concerns are becoming important national issues. Information on the types and levels of infestation, insect resistance to chemicals, pesticide residues, and other chemical uses should be gathered to aid in determining the extent of the problem and in making decisions regarding future actions. FGIS, due to its proximity to grain, could be collecting additional data in these areas.

3. Need for a National Testing Policy

FGIS has two basic areas of responsibility under USGSA: to establish grades and standards for all grains covered by USGSA, and to provide a national inspection program to assure accurate and unbiased inspection results.

Grain can be inspected many times as it moves from the farm to its ultimate destination. Normally, grain is tested for one or more important characteristics each time it is loaded into and out of a grain elevator. The number and type of tests performed vary, from tests provided for in the grain standards, to specific end-use tests such as breakage susceptibility in corn, to laboratory tests like those for the rheological properties of flour.

No single national policy exists regarding what types of tests will be performed or who will perform them. The USGSA requires that grain standards be developed and used when grain is marketed. But no requirement exists regarding who will perform the tests and what tests will be performed on grain moving domestically in the United States. In fact, two USDA agencies, FGIS and the Agriculture Stabilization and Conservation Service (ASCS), are authorized by Congress to perform testing services on domestic grain movements using the grain standards. The only mandatory testing is performed by FGIS on export grain.

In practice, grain traded between two companies is normally tested by FGIS or one of its affiliated agencies. However, some domestic processors and nearly all grain companies buying farmer-

owned grain purchase grain on the basis of tests performed by their own personnel. These groups, except in cases where a particular buyer requires additional tests, normally use some or all of the tests provided in the grain standards.

Since no single policy exists for inspecting grain, no one group is responsible for developing and overseeing the tests and equipment used. FGIS provides independent third-party testing services using the tests contained in the grain standards. Other tests – such as protein content, falling number tests in wheat, aflatoxin in corn, and ethylene dibromide residue – are also provided upon request. All tests provided under FGIS authority are regulated in that the equipment used must be approved, procedures for its use are developed, and the accuracy of results are monitored.

Tests provided under the authority of the Warehouse Division of ASCS and by private concerns are not regulated to the same degree. No requirements for the type of equipment to be used, procedures for its use, or monitoring of accuracy have been developed. In some instances, individual States have taken it upon themselves to develop criteria for approving equipment used to test grain and monitor equipment accuracy. Professional societies such as the American Oil Chemists Society and the American Association of Cereal Chemists have developed criteria for approving testing technology and its use. Many of the tests covered by these societies are not covered in the grain standards.

Regardless of which tests are performed and who performs them, several factors are important to testing. These include instrument precision, equipment standardization, the choice of reference methods and traceability to standard reference methods, and natural errors resulting from sampling. Standardization of equipment is vital to fair trade and will be even more important as technologically advanced testing equipment is used in the marketplace.

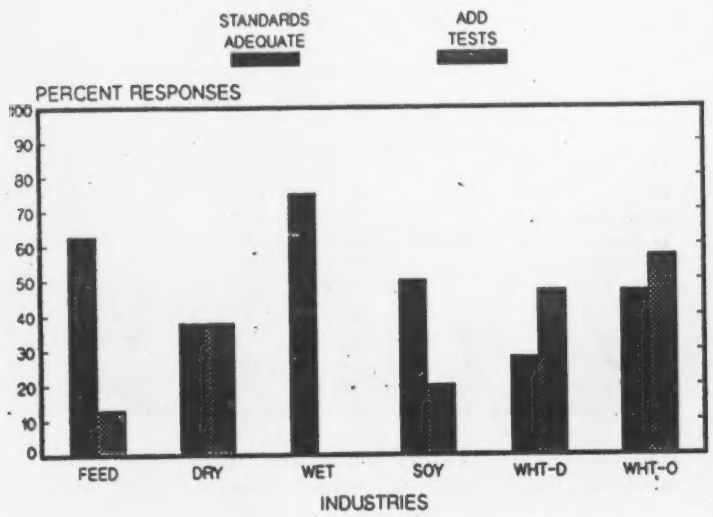
The most visible example of standardization is the weights and measure program coordinated by the National Bureau of Standards (NBS) of the Department of Commerce. NBS develops specifications for instrument precision and accuracy along with scale tolerances, and it maintains national standards. Scale testing companies follow NBS procedures when performing periodic testing using field standards that are traceable back to the NBS national standard. However, in the case of grain measures other than weight, no single national organization exists for standardizing tests. FGIS could potentially provide such a service.

4. Need for Scientific Input on FGIS Advisory Committee

As important future issues develop, the composition and role of the FGIS Advisory Committee should be reviewed. Many issues facing FGIS and the Nation regarding grain quality are technical in nature and are not easily resolved. Additional tests for quality, if warranted, along with end-use quality requirements require expertise not currently available on the committee. Most committee members, even though they represent various industries, are operations managers concerned quite naturally with the economics of decisions rather than the scientific perspective. Consideration should be given to expanding the current committee to include members from universities with backgrounds in such technical areas as cereal chemistry, engineering, economics, and plant breeding.

Charts, Figures 1-7 and Tables 1-6 follow:

Figure 1. **ADEQUACY OF STANDARDS AND DESIRE FOR INCLUDING ADDITIONAL TESTS BY INDUSTRY**



Key to Abbreviations

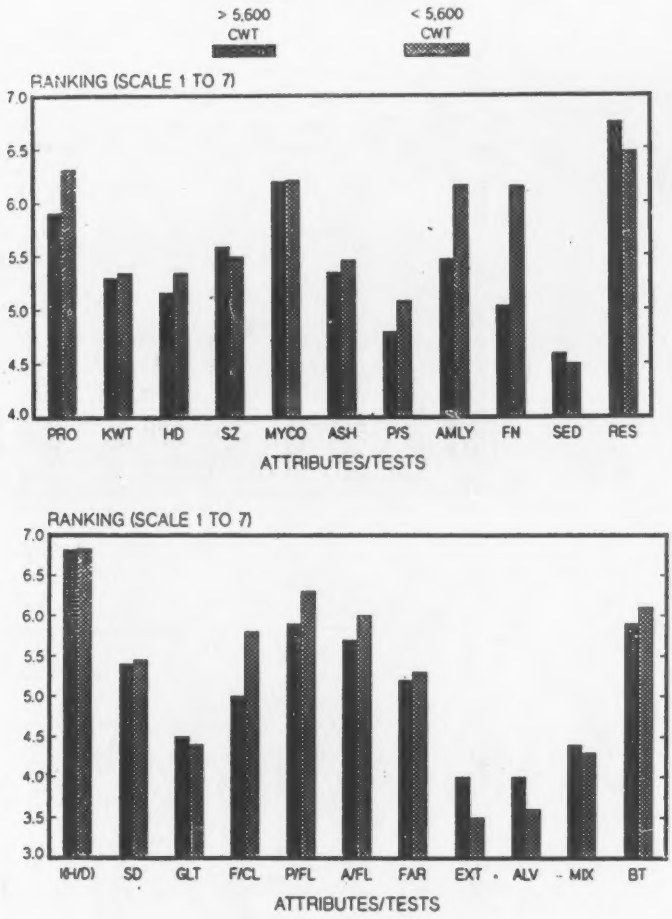
FEED	Feed Manufacturers
DRY	Dry millers
WET	Wet millers
SOY	Soybean processors
WHT-D	Wheat millers (domestic)
WHT-O	Wheat millers (overseas)

Ranking Scale

(1) extremely unimportant
(2) moderately unimportant
(3) slightly unimportant
(4) neither important nor unimportant
(5) slightly important
(6) moderately important
(7) extremely important

Source: Office of Technology Assessment, 1988

Figure 2. IMPORTANCE OF WHEAT ATTRIBUTES AND/OR TESTS BY DOMESTIC MILL CAPACITY



Key to Abbreviations

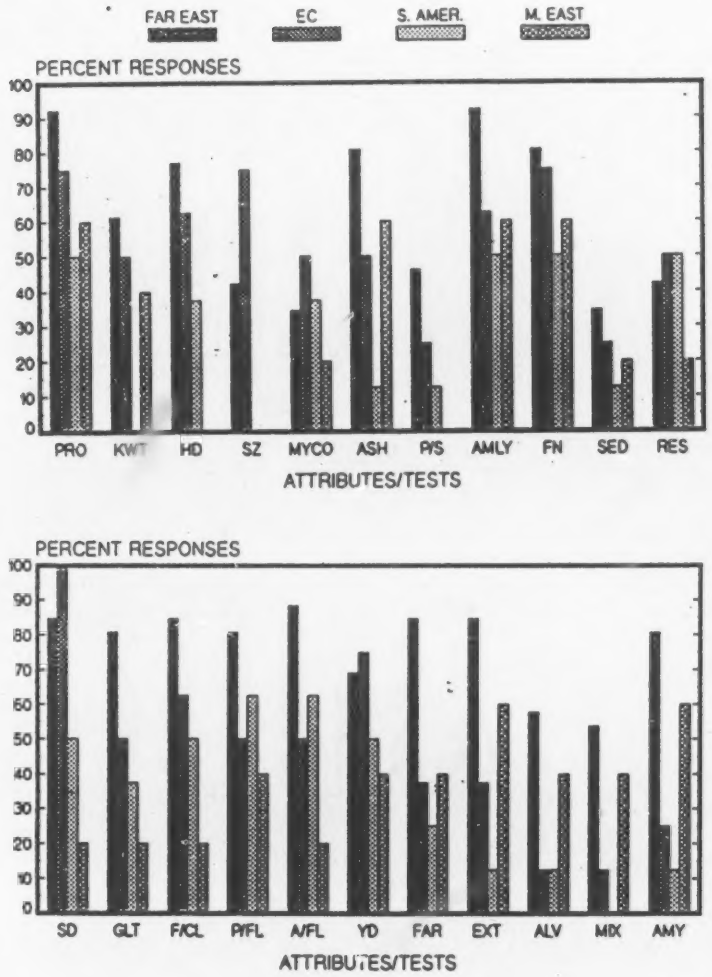
PRO	Protein	SD	Starch damage
KWT	1000 kernel weight	GLT	Wet/dry gluten
HD	Hardness	F/CL	Flour color
SZ	Kernel size	P/FL	Flour protein
MYCO	Mycotoxins	A/FL	Flour ash
ASH	Wheat ash	FAR	Farinograph
P/S	Particle size	EXT	Extensograph
AMLY	Alpha amylase	ALV	Alveograph
FN	Falling number	MIX	Mixograph
SED	Sedimentation	BT	Baking Test
RES	Pesticide residue		
I(H/D)	Insects (hidden/dead)		

Ranking Scale

(1) extremely unimportant
(2) moderately unimportant
(3) slightly unimportant
(4) neither important nor unimportant
(5) slightly important
(6) moderately important
(7) extremely important

Source: Office of Technology Assessment, 1988

Figure 3. **IMPORTANCE OF WHEAT ATTRIBUTES AND/OR TESTS BY REGION OF THE WORLD**



Ranking Scale

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(2) moderately unimportant
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(4) neither important nor unimportant
(5) slightly important
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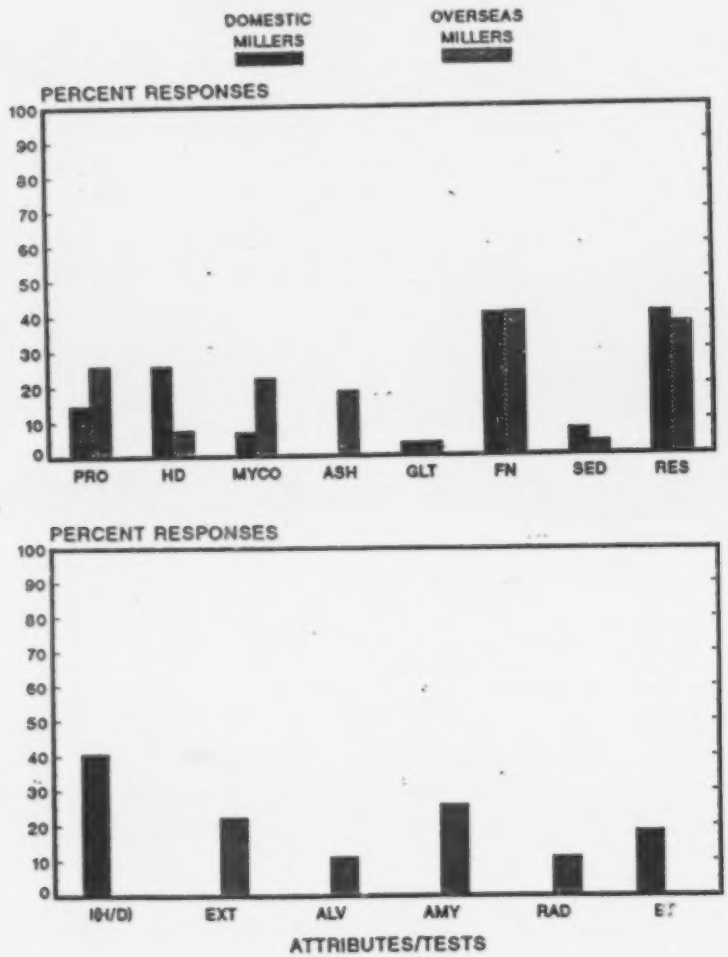
Key to Abbreviations

PRO	Protein	SD	Starch damage
KWT	1000 kernel weight	GLT	Wet/dry gluten
HD	Hardness	F/CL	Flour color
SZ	Kernel size	P/FL	Flour protein
MYCO	Mycotoxins	A/FL	Flour ash
ASH	Wheat ash	FAR	Farinograph
P/S	Particle size	EXT	Extensograph
AMLY	Alpha amylase	ALV	Alveograph
FN	Falling number	MIX	Mixograph
SED	Sedimentation	AMY	Amylograph
RES	Pesticide residue		

Source: Office of Technology Assessment, 1988

Figure 4. ADDITIONAL TESTS FOR INCLUSION IN THE WHEAT STANDARDS BY DOMESTIC/OVERSEAS MILLERS



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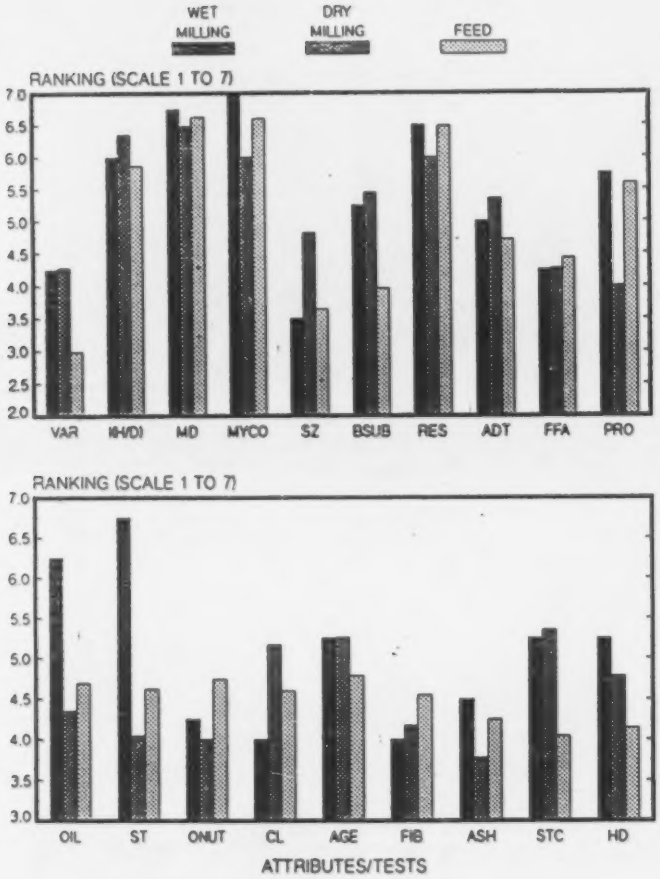
Key to Abbreviations

PRO	Protein	F/CL	Flour color
HD	Hardness	FAR	Farinograph
MYCO	Mycotoxins	EXT	Extensograph
ASH	Wheat ash	ALV	Alveograph
P/S	Particle size	AMY	Amylograph
FN	Falling number	RAD	Radiation
SED	Sedimentation	BT	Baking test
RES	Pesticide residue	I(H/D)	Insects (hidden/dead)

Source: Office of Technology Assessment, 1988

Figure 5. **IMPORTANCE OF CORN ATTRIBUTES AND/OR TESTS BY INDUSTRY**



Ranking Scale

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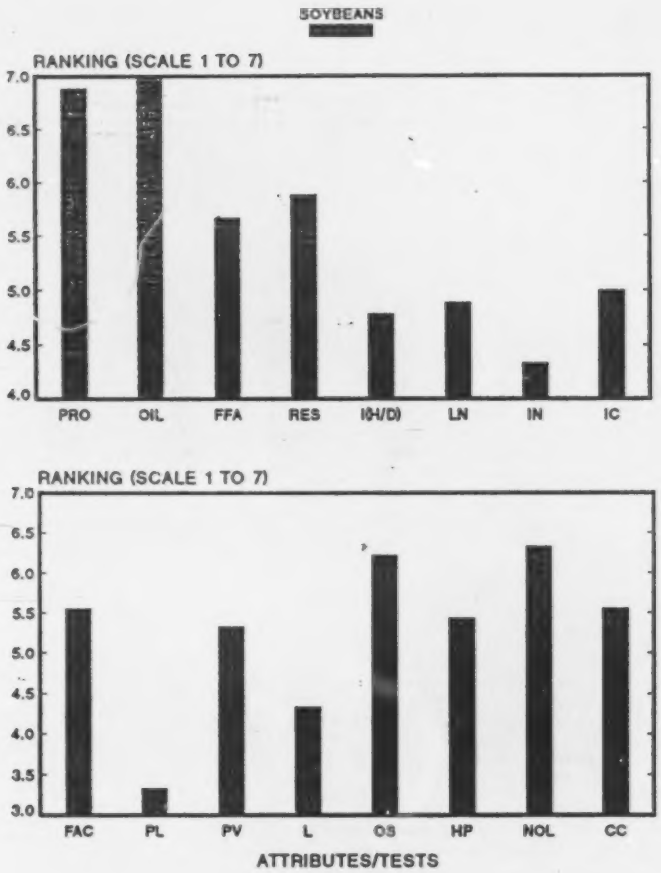
(3) slightly unimportant
(4) neither important nor unimportant
(5) slightly important
(6) moderately important
(7) extremely important

Key to Abbreviations

VAR	Variety
I(H/D)	Insects (hidden/dead)
MD	Mold
MYCO	Mycotoxins
SZ	Kernel size
BSUB	Breakage susceptibility
RES	Pesticide residue
ADT	Artifical drying temperature
FFA	Free fatty acid
PRO	Protein
OIL	Oil
ST	Starch
ONUT	Other nutrients
CL	Color
AGE	Age
FIB	Fiber
ASH	Ash
STC	Stress cracks
HD	Hardness

Source: Office of Technology Assessment, 1988

Figure 6. IMPORTANCE OF SOYBEAN ATTRIBUTES AND/OR TESTS



Ranking Scale

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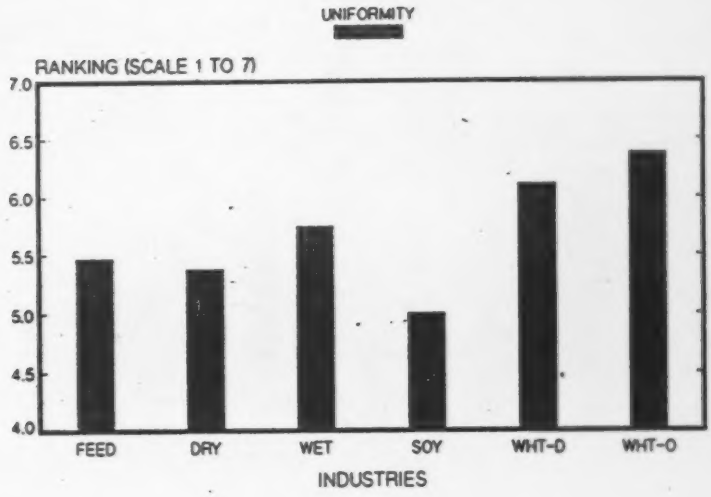
(3) slightly unimportant
(4) neither important nor unimportant
(5) slightly important
(6) moderately important
(7) extremely important

Key to Abbreviations

PRO	Protein	FAC	Fatty acid content
Oil	Oil	PL	Phosphorus level
FFA	Free fatty acid	PV	Peroxide value
RES	Pesticide residue	L	Lipoxygenase
I(H/D)	Insects (hidden/dead)	OS	Oil stability
LN	Lovibond number	HP	Hydratable phosphatides
IN	Iodine number	NOL	Neutral oil loss
IC	Iron content	CC	Chlorophyll content

Source: Office of Technology Assessment, 1988

Figure 7. IMPORTANCE OF UNIFORMITY BETWEEN SHIPMENTS BY INDUSTRY



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Key to Abbreviations

FEED	Feed Manufacturers
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WET	Wet millers
SOY	Soybean processors
WHT-D	Wheat millers (domestic)
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Source: Office of Technology Assessment, 1988

Table 1. SEDIMENTATION VALUE PREMIUMS AND DISCOUNTS PROVIDED BY THE LOAN RATE PROGRAM, 1963 TO 1964

Sedimentation Value 1963	Premium or Discount 1963	Sedimentation Value 1964	Premium or Discount 1964
	cents/bu		cents/bu
21 and below	-9	22 and below	-6
22-23	-8	23-25	-5
24-25	-7	26-28	-4
26-27	-6	29-31	-3
28-29	-5	32-34	-2
30-31	-4	35-37	-1
32-33	-3	38-42	0
34-35	-2	43-45	+1
36-37	-1	46-48	+2
38-42	0	49-51	+3
43-44	+1	52-54	+4
45-46	+2	55-57	+5
47-48	+3	58-60	+6
49-50	+4	61-63	+7
51-52	+5	64-66	+8
53-54	+6	67 and above	+9
55-56	+7		
57-58	+8		
59-60	+9		
61-62	+10		
63-64	+11		
65 and over	+12		

SOURCE: ASCS, Schedule of Premiums and Discounts, various issues.

Table 2. Historical Loan Rate Versus Market Premiums for Hard Red Spring (HRS) and Hard Red Winter (HRW) Wheat

Market Year	HRW Loan Rate Premium 13% Over 10.5%[a]	HRW Market Premium 13% Over Ordinary[c]	Difference	HRS Loan Rate Premium 15% Over 11.5%[a]	HRS Market Premium 15% Over 12%[b]	Difference
	cents/bu			cents/bu		
1965	4.50	-2	-6.50	10.50	11	.50
1966	4.50	5	.50	10.50	1	-9.50
1967	4.50	3	-1.50	10.50	4	-6.50
1968	4.50	17	12.50	10.50	22	11.50
1969	4.50	3	-1.50	10.50	17	6.50
1970	4.50	15	10.50	10.50	12	1.50
1971	4.50	6	1.50	10.50	16	5.50
1972	4.50	5	.50	10.50	8	-2.50
1973	4.25	8	3.75	10.50	12	-1.50
1974	4.25	44	39.75	10.50	69	58.50
1975	4.50	42	37.50	10.50	98	87.50
1976	4.50	31	26.50	10.50	36	25.50
1977	4.50	9	4.50	16.00	19	3.00
1978	4.50	3	-1.50	16.00	11	-5.00
1979	4.50	9	4.50	16.00	16	0.00
1980	4.50	5	.50	16.00	50	34.00
1981	4.50	3	-1.50	16.00	14	-2.00
1982	4.50	19	14.50	16.00	18	2.00
1983	4.50	30	25.50	16.00	20	4.00
1984	4.50	19	14.50	16.00	53	37.00
1985	4.50	34	29.50	16.00	74	58.00
1986	4.50	15	10.50	16.00	78	62.00

SOURCES:

[a]ASCS, Schedule of Premiums and Discounts, various issues;
[b]Minneapolis Grain Exchange, Statistical Annual, various issues;
[c]USDA/ERS, Wheat Outlook and Situation, various issues.

Table 3. IMPLIED PREMIUM NECESSARY FOR HRS PRODUCERS TO BE INDIFFERENT BETWEEN GROWING 14 PERCENT AND 15 PERCENT PROTEIN WHEAT

Yield	Protein	Premium[b]	Loan Rate	Revenue[a]
bu/acre	%	$/bu	$/bu	$/acre
29	15	0.53	2.40	144
28	15	0.64	2.40	144
27	15	0.75	2.40	144
26	15	0.87	2.40	144
25	15	1.00	2.40	144

[a]Revenue (TR) was derived as

$$TR = Y_p \cdot DP + (Y_a \cdot P_0) + Y_a \cdot Premium$$

where Y_p is proven yield (30 in this case), DP is the deficiency payment, Y_a is actual yield (29. . .25), P_0 is market price or loan rate.

[b]Premiums are derived from equating TR to $144/acre.

SOURCE: Office of Technology Assessment, 1988.

Table 4. IMPLIED PREMIUM NECESSARY FOR HRW PRODUCERS TO BE INDIFFERENT BETWEEN GROWING 11 PERCENT AND 13 PERCENT PROTEIN WHEAT

Yield	Protein	Premium[b]	Loan Rate	Revenue[a]
bu/acre	%	$/bu	$/bu	$/acre
39	13	0.10	2.40	179
37	13	0.24	2.40	179
35	13	0.39	2.40	179
33	13	0.56	2.40	179
31	13	0.75	2.40	179

[a]Revenue (TR) was derived as

$$TR = Y_p \cdot DP + (Y_a \cdot P_0) + Y_a \cdot Premium$$

where Y_p is proven yield (41 in this case), DP is the deficiency payment, Y_a is actual yield (39. . .31), P_0 is market price or loan rate.

[b]Premiums are derived from equating TR to $179/acre.

SOURCE: Office of Technology Assessment, 1988.

Table 5. THEORETICAL REVENUE FOR A ONE-ACRE FARM IN NORTH DAKOTA

Year	Target Price[a]	25 bu/acre/15% Protein				30/bu/acre/14% Protein			
		Protein Premium		Revenue Per Acre		Protein Premium		Revenue Per Acre	
		Market	Loan Rate	Market[b]	Loan Rate[c]	Market	Loan Rate	Market[b]	Loan Rate[c]
		$/bu		$/acre		$/bu		$/acre	
1965	1.69	0.11	0.105	45	45	0.060	0.075	53	53
1966	1.84	0.01	0.105	46	49	0.010	0.075	56	57
1967	1.73	0.04	0.105	44	46	0.040	0.075	53	54
1968	1.80	0.22	0.105	51	48	0.100	0.075	57	56
1969	1.89	0.17	0.105	52	50	0.070	0.075	59	59
1970	2.00	0.12	0.105	53	53	0.020	0.075	61	62
1971	1.79	0.16	0.105	49	47	0.150	0.075	58	56
1972	1.72	0.08	0.105	45	46	0.080	0.075	54	54
1973	1.47	0.12	0.105	40	39	0.120	0.075	48	46
1974	2.05	0.44	0.105	62	54	0.286	0.075	70	64
1975	2.05	0.71	0.105	69	54	0.440	0.075	75	64
1976	2.29	0.36	0.105	66	60	0.230	0.075	76	71
1977	2.90	0.19	0.160	77	77	0.110	0.090	90	90
1978	3.40	0.11	0.160	88	89	0.035	0.090	103	105
1979	3.40	0.16	0.160	89	89	0.010	0.090	102	105
1980	3.63	0.50	0.160	103	95	0.220	0.090	116	112
1981	3.81	0.14	0.160	99	99	0.060	0.090	116	117
1982	4.05	0.18	0.160	106	105	0.090	0.090	125	125
1983	4.30	0.20	0.160	113	112	0.150	0.090	134	132
1984	4.38	0.53	0.160	123	114	0.300	0.090	140	134
1985	4.38	0.74	0.160	128	114	0.420	0.090	144	134
1986	4.38	0.78	0.160	129	114	0.430	0.090	144	134

[a]Prior to 1973 target price is blended average price to program participants reflecting national average price received by farmers and the marketing certificate value averaged for participant's total production. Post 1973 target prices is loan rate plus deficiency payment.
[b]Revenue is market premium plus target price times yield.
[c]Revenue is government premium plus target price times yield.

SOURCE: USDA, Statistical Reporting Service, "Agricultural Statistics," various issues.

TABLE 6. THEORETICAL REVENUE FOR A ONE-ACRE FARM IN KANSAS

Year	Target Price[a]	35 bu/acre/13% Protein				41/bu/acre/11% Protein			
		Protein Premium		Revenue Per Acre		Protein Premium		Revenue Per Acre	
		Market	Loan Rate	Market[b]	Loan Rate[c]	Market	Loan Rate	Market[b]	Loan Rate[c]
		$/bu		$/acre		$/bu		$/acre	
1965	1.69	-0.02	0.0450	58	61	--	--	69	69
1966	1.84	0.05	0.0450	66	66	--	--	75	75
1967	1.73	0.03	0.0450	62	62	--	--	71	71
1968	1.80	0.17	0.0450	69	65	--	--	74	74
1969	1.89	0.03	0.0450	67	68	--	--	77	77
1970	2.00	0.15	0.0450	75	72	--	--	82	82
1971	1.79	0.06	0.0450	65	64	--	--	73	73
1972	1.72	0.05	0.0450	62	62	--	--	71	71
1973	1.47	0.08	0.0425	54	53	--	--	60	60
1974	2.05	0.44	0.0425	87	73	--	--	84	84
1975	2.05	0.42	0.0450	86	72	--	--	84	84
1976	2.29	0.31	0.0450	91	81	--	--	94	94
1977	2.90	0.09	0.0450	105	103	--	0.005	119	119
1978	3.40	0.03	0.0450	120	121	--	0.005	139	139
1979	3.40	0.09	0.0450	122	120	--	0.005	139	139
1980	3.63	0.05	0.0450	129	129	--	0.005	149	150
1981	3.81	0.03	0.0450	134	135	--	0.005	156	156
1982	4.05	0.19	0.0450	148	143	--	0.005	166	166
1983	4.30	0.30	0.0450	161	152	--	0.005	176	177
1984	4.38	0.19	0.0450	160	155	--	0.005	180	180
1985	4.38	0.34	0.0450	165	155	--	0.005	180	180
1986	4.38	0.15	0.0450	159	155	--	0.005	180	180

[a]Prior to 1973 target price is blended average price to program participants reflecting national average price received by farmers and the marketing certificate value averaged for participant's total production. Post 1973 target prices is loan rate plus deficiency payment.
[b]Revenue is market premium plus target price times yield.
[c]Revenue is government premium plus target price times yield.

SOURCE: USDA, Statistical Reporting Service, "Agricultural Statistics," various issues.

Senator CONRAD. Thank you very much. I think I am going to amend what I had earlier indicated, that we would go to Mr. Evans, and then open it to questions, because there are a couple of things that I want to follow up on immediately before we lose the flow here.

One of the things I was interested in is this. My understanding is OTA is charged with looking at our grain production and marketing system and comparing it to our major competitors. Is that part of the study?

Dr. PHILLIPS. That is part of the overall study. We have not included that in terms of testimony here today.

Senator CONRAD. I understand that, and I am very interested in any preliminary findings that you have in that area. How are we doing vis-a-vis our competitors?

Dr. PHILLIPS. Well, particularly from a technology standpoint, one of the things that has come through very clearly, is that we neither have an edge nor are we behind in terms of the technologies that are being used within grain systems, in terms of the production and handling systems.

Nor do we have an edge, nor are we behind in terms of the way in which we measure grain. We find that the technologies that are used are pretty much universal among all the exporting countries. Where differences come in are basically in the policies and in the institutions that are created, then, in the way grain is handled, and the way in which quality is perceived. And I think one of the big differences that we need to be sensitive to is that in considering their farm policy, within many of the countries, quality is an important ingredient.

It is integrated in the policy decisionmaking that I think in——

Senator CONRAD. That we are lacking that focus?

Dr. PHILLIPS [continuing]. Comparison to the United States, that we do differ from. It is interesting to note that many countries feel that in the way in which they have to compete with the United States, quality is an area that they feel as though they can compete on.

They cannot compete in other areas. For example, like in the financial transactions, to give large loans to customers. A country like Argentina cannot do that, compared to the United States, so they focus more on the quality side, and try to differentiate themselves from the United States on that side of the transaction, to be competitive in the marketplace.

Senator CONRAD. In your study, did you do any comparative analysis in terms of whether we are improving on the quality issue or are we falling back? I think that is something that people are going to be very interested in, in terms of looking at how are we doing. Are we making progress?

Dr. PHILLIPS. Oh, I do not think there is any question about the fact that we are making progress. I think with the attention that Congress has given to this, the work that, when Congressman Evans was on the House side, spearheaded, as well as the work that has been done with your subcommittee on this side of the Capitol.

The industry, and I think all of us, are more sensitive to what the issues are, and I think with Kirk Miller at FGIS, who has been

trying to do the best job he can in terms of implementing this, we are definitely making progress.

I think what we are all learning in this process, though, is that it is very complex. There are a number of tradeoffs that we have to know about before we begin going pell-mell in one direction, and those just need to be evaluated, so we know kind of what we are getting into.

But I think, without question, we are making progress. I think we all have to be prepared that it is going to be maybe a little slower than what we would all like.

Senator CONRAD. Let me ask you a final question and then we will go on to Cooper Evans, and then we will probably come back to ask some other questions of both of you.

If you were to identify one hurdle out there, that if we were able to jump, and would allow us to make significant progress, what would it be?

As you have looked over this system, is there one thing that really stands out in your mind as something that, if you could tomorrow, get in place a different policy, would move us ahead?

Dr. PHILLIPS. I think basically that would come under the heading of farm policy. I think currently we have a system, that at a minimum, Government should be neutral in terms of the kinds of signals that it sends out with regards to quality, and we currently have a system in our loan program that is distorting the marketplace.

It is making the market have to offer premiums higher than it probably otherwise would have——

Senator CONRAD. In order to get the quality.

Dr. PHILLIPS [continuing]. In order to get the quality, and second, it also means that lower-quality grain is moving into Government storage, and I do not think that is probably what any of us really want.

Senator CONRAD. How would you deal with that? If you were to wave a wand, how would you deal with that question?

Dr. PHILLIPS. I think at a minimum, what you do is that the premiums and discounts that ASCS offers should reflect the marketplace, so that Government is not out there distorting the signals. It is going along with the marketplace.

There are clearly some administration kinds of problems with that, that is not an easy thing to do, but I think we had a system in place in the 1960's that probably did a better job, as it relates to quality, than what we have today.

We can do some things to have additional tests for quality of grain that comes in to Government programs. You could, for example, in wheat, ask for a falling number test. You might want to think about certain varieties of wheat that you would not want to come into Government storage.

Senator CONRAD. Let's get right to the bottom line on this question. If we make this change, do the wheat farmers in North Dakota get more money? If the answer is yes, I think I agree with you.

Dr. PHILLIPS. I think everybody comes out a winner. It may mean that farmers may have to do some things differently than they are doing now, but overall, I think everybody comes out winners. It

helps make us more competitive in the marketplace, which is what we want to be, and although we may look and say well, exports are doing fine today, I think we have to recognize one of the reasons why that is taking place, and the actions of this committee, and others, are a major reason for that.

But, we are going to have to be dealing—it is going to be a very, very fiercely competitive marketplace in the near future, and quality is going to be one of the differentiating factors buyers are going to use to decide whether they buy from us or they buy from Canada, or they buy from Argentina.

And I think it is an area that, if we make some of these kinds of changes which—for the most part, I think what we are looking at are not revolutionary kinds of changes, I think we can do some things within the system that we currently have. If we make some of those kinds of adjustments, and everyone adjusts along the way, then everyone comes out winners.

Senator CONRAD. So if I were to sum up what I have heard from you—and let me make sure I have heard correctly—you are saying that if there were one place that you would make a change in farm policy—and you have identified that as the most important place that we could make an improvement—it would be in basing the premiums and discounts on kinds of quality differentials that matter in the marketplace?

Dr. PHILLIPS. Yes. Now there are other things, too.

Senator CONRAD. I understand.

Dr. PHILLIPS. I mean the question was one thing and——

Senator CONRAD. Well, I want to put the focus on one thing, so that we know what is the most important thing we could do. You have mentioned others and I have taken note of the four areas that you have identified as goals, and when we get to Kirk, you can be sure I will be asking him about that, and see where we are trending in those areas.

But I want to put something up at the top here, so that we have a clear goal in mind. Thank you very much, and we will get back to you. I want to welcome Cooper Evans, a Member of Congress, who represented the Third District of Iowa for a long time, and now is back in the private sector and involved in this area. Welcome, Cooper. I appreciate very much your being here today. Please proceed, and then we will have a chance for some questions as well.

STATEMENT OF COOPER EVANS, FORMER MEMBER OF CONGRESS, COOPER EVANS AND ASSOCIATES, CEDAR FALLS, IA

Mr. EVANS. Thank you, Mr. Chairman. I really do appreciate the opportunity to testify today on the reauthorization of FGIS and on the subject of grain quality.

Submitted with my testimony is a paper on grain quality called "Grain Quality: Adjusting to Change." I would ask that that be considered a part of my testimony.

Senator CONRAD. Without objection, it will be included.

Mr. EVANS. Getting right to the problem, as I view it, I think that we, as an exporting nation, have three fundamental problems relating to the grading of our grain.

The first is that our standards and procedures strongly favor the U.S. seller over the foreign buyer.

The second is that our official grain grading system does not test for and certify a number of quality characteristics of major interest to overseas users of our grain. Mr. Phillips just commented on that at some length.

The third is that the rate of progress toward meeting the policy goals set forth in the Grain Quality Improvement Act of 1986 is, in my judgment, slow. My testimony will expand on these three points.

As I have stated, our grain standards, procedures, and customs deliberately favor U.S. grain exporters over foreign customers. This is very serious. In some instances, the officially sanctioned advantages of our grain merchants border on the dishonest, in my judgment. Because of this, our overseas customers increasingly feel that when they buy in the United States they may not receive the quality for which they pay. That is their fear: that they may not receive the quality for which they pay. There are solid grounds for such concerns, and these are outlined in my attached paper. I will not go into them here. A point of importance is, if we are going to be successful in this highly competitive field, our customers must be confident that when they buy from the United States we are going to treat them fairly, and there are doubts on that score at the present time.

The second problem is that our existing system of numerical grain grades provides substantial information on the condition of grain, but very little about its true value to the end-user, and I think that is an important point. To illustrate, soybeans from varieties grown in Iowa in 1987 had protein contents ranging from 37 to 42 percent, and oil content ranging from 20 to 23 percent—dry matter basis—regardless of the numerical grade.

The difference in value depending on those characteristics is something like 40 cents a bushel, I am told by some ag economists, not from high to low, but from the median to the high, or the median to the low. That is an important difference.

In recent years grain testing equipment has been developed to quickly measure a number of these value characteristics. They include not only protein and oil content, but also starch content, total energy, and resistance to breakage. Mr. Phillips has mentioned some others. These are some of the factors that determine the profitability of processing and these are things that are of great increasing interest to our customers overseas.

We should proceed as rapidly as possible to make that kind of test information available to our customers when they want it at least.

Senator CONRAD. Could I just interrupt you there, Cooper?

Mr. EVANS. Yes, you certainly may.

Senator CONRAD. You have already got my interest going on a couple of points that you have made. How difficult would it be for us to make those kinds of determinations?

Mr. EVANS. Well, I think Mr. Miller will comment on this but they are proceeding to do this. My only comment would be that we could proceed faster.

The near-infrared technology for measuring protein and oil content is well developed, and I believe that Mr. Miller will confirm that perhaps in 18 months you will be in a position to offer that kind of services on those two matters at least in soybeans.

Senator CONRAD. Cooper, let me also take you back to an earlier point you made, because you raised a point that I recently raised when I was down at the port in New Orleans, and was looking at what was happening in terms of grain quality. Just to share with you, I was down there earlier in the 1980's and had taken a look at what was happening. I must say, from my observation of about a 5-year interval, our quality, what was going onto the ships, was a significant improvement in terms of what I saw happening earlier.

One of the questions that I asked at the port facility was the point that you are making about the perception of our customers.

I recently spent an evening with a man who has the only flour mill in Indonesia. They service 175 million people from that flour mill. And we got on this question of perception, perception of quality, and perception of consistency of quality, which is a point that OTA has made in their report. And the answer that I got back from our people who are in the export business was: oh, wait a minute now. These people buy by a standard and they tell us they want No. 2, we deliver No. 2. And then they complain about it not being top grade.

And they say to me: look, people can buy from us any quality they want if they are willing to pay the piper. Now why isn't that an answer on the question of perception, and in terms of the quality of what we deliver?

Mr. EVANS. Because in many instances, Mr. Chairman, the question is: does it or does it not meet the standards? And, because of our procedures, and the way we define things, the interpretation of whether it does or does not meet the standards, and the terms of the contract, is a matter of contention.

We have gone to great lengths in the grain industry in this country, in recent years, to develop extremely sophisticated equipment, that let us take the standards as a goal to be sought in terms of minimum value, absolute minimum value to meet that standards. It then becomes very questionable.

There are a number of technical reasons why this is so, and they are outlined I think at some length in the attached paper, and I do not think you want to go into them this morning. But the question is, do we really get the grade that we order?

Now I have had one person put it this way. They say not very many of us order really high quality grain from overseas, but if we order a Rolls Royce, we have the feeling you send us a Cadillac. If we order a Cadillac, we have the feeling you send us a Chevy.

If we order a Chevy—and this is what most of them do order—we have the feeling that maybe we get a used Pinto. You see, that is the problem. Regardless of the grade that they order, there is always a question as to whether that grain really meets the grade. There are a number of things that can be done to improve our procedures and standards, and I will say that the FGIS is working diligently on a number of these. I think there are others that should be addressed also.

Senator CONRAD. All right. I wanted to make this point because it is a central point——

Mr. EVANS. Yes, it is.

Senator CONRAD [continuing]. And I did not want to let it slip by without focusing on it, so I appreciate your indulgence.

Mr. EVANS. Well, that is quite all right. The third problem relates to that very closely, and maybe will help a bit.

The third fundamental problem, closely related to the first and second, is the rather slow rate of progress toward implementing the basic principles set forth in the Grain Quality Improvement Act of 1986, and I will quote one part from that Act.

"The primary objective of the official United States standards is to certify the quality of grain as accurately as practicable." A very, very important phrase, in addition to the points that Mr. Phillips pointed out.

Now, I think there are many ways in which we have not yet achieved that goal, and I do not want to go into a long listing of these, but let me just mention three that I think are the cause of the kind of problems that you were referring to, and indicate that we have a way to go.

And the first of these is: the United States standards, right now, define a whole kernel of grain as one from which not more than 25 percent is missing. We define a whole kernel of grain as one from which not more than 25 percent is missing. That hardly is a definition that creates confidence in our customers.

A second one is, as an example, a yellow soybean is defined as a bean which is either yellow or green in color. Green soybeans, of course, are immature soybeans.

A third example, and again, relating to soybeans. A mixture of 50 percent broken soybeans, 10 percent oats, and 40 percent topsoil meets the current official definition of soybeans. Now I think that is important because it is legal under our system to blend sample grade soybeans of this kind, but it is not legal to add topsoil as a foreign material.

You see, the definitions really need to be tightened, in my judgment.

Senator CONRAD. And whose obligation and whose responsibility is that?

Mr. EVANS. Well, one could of course take an approach that that ought to be done legislatively. I certainly do not feel that way. I think it is not a legislative type of problem. I think it needs to be done administratively. I think it needs to be done in conjunction with the industry, with producers, with overseas users—and I want to differentiate between overseas buyers and overseas users of our grain. I think there is a great difference there.

One final comment on the reauthorization itself. I have seen the administration's bill. I support it. I do not think that it ought to be complicated to any great extent, in my own view, but I do think there are a couple of things that might be done to improve it, to speed progress.

And the first of these has to do with the composition of the Advisory Committee. I think they have a good Advisory Committee. I think it has considerable diversity to it. However, I would do two things to it to make it broader in its perspective, and one of these

would be to add some people from academia. I think there are some really great skills there that we are missing.

And the second is, I think that the foreign end-users' point of view ought to be represented in that committee, if we are really serious about trying to meet our customers' needs.

I would suggest that you consider trying to strengthen the oversight provisions on this business of grain quality in that bill. I think it would be reasonable to ask for a report on progress in meeting the goals of the 1986 act for the next couple of years, and I think it would be good to have a congressional hearing on that progress each year for the next several years.

That completes my testimony.

[The prepared statement and the attached paper, "Grain Quality: Adjusting to Change" of Mr. Evans follow:]

Statement of Cooper Evans

Before the

Senate Subcommittee on Agricultural

Research and General Legislation

April 29, 1988

Mr. Chairman and Members of the Subcommittee:

Thank you for the opportunity to testify today on the reauthorization of the Federal Grain Inspection Service and the subject of grain quality.

Submitted with my testimony is a paper on grain quality. The paper outlines specific features I consider to be deficiencies in our grain standards, official procedures, and customs. Copies of this paper have been provided to the office of each member of the Committee.

While the attached paper is specific and detailed, my remarks today will be much more general. My purpose is to bring to your attention basic principals that are important and to suggest small changes to the reauthorization legislation.

I appear today on my own behalf as a producer of corn and soybeans, and as a representative of one of our best foreign customers, the oilseed processors of the Federal Republic of Germany. It is important to note that U.S. producers and foreign users of our grains and oilseeds share many of the same concerns.

At present we, as an exporting nation, have three fundamental problems relating to the grading of our grain. The first is that our standards and procedures strongly favor the U.S. seller over the foreign buyer. The second is that our official grain grading system does not test for and certify a number of quality characteristics of major interest to overseas users of our grain. The third is that the rate of progress toward meeting the policy goals set forth in the Grain Quality Improvement Act of 1986 is slow. The rest of my testimony will expand on these points.

To put the subject in perspective, it is important to understand that grain quality is increasingly a major factor determining the U.S. share of world grain markets. It is not, however, the most important factor. Grain quality ranks a strong third behind price and the seller's ability to deliver grain in a timely manner. This ordering is not likely to change.

As I have stated, our grain standards, procedures, and customs deliberately favor U.S. grain exporters over foreign customers, and also over the interests of U.S. producers. In some instances the officially sanctioned advantages of our grain merchants border on the dishonest. Because of this, our overseas customers increasingly feel that when they buy in the U.S. they may not receive the quality for which they pay. There are solid grounds for such concerns. These grounds are detailed in the attached paper. A point of importance is that because our customers feel they risk being shortchanged, many now prefer to buy elsewhere when other sources can provide timely delivery at an equal price. In a world capable of producing an abundance of grain we are at a serious disadvantage if we ignore quality.

One factor related to fair treatment of customers is the change in attitude that has taken place in recent years toward the intended function of grain standards. Originally the standards set maximum limits for undesirable characteristics which on occasion occur in grain. Now, however, our grain merchants view these limits as the normal level to be vigorously sought in compounding cargoes for overseas destinations. The use of sophisticated blending techniques to consistently deliver minimum value is not appreciated by foreign customers, particularly when they have alternate sources of supply.

The customer is not the only loser under these conditions. The producer who delivers high quality grain without receiving a premium, only to see his grain used as blending material, is paying the cost of the present system. As these producers come to understand how the process works they will cease striving for quality. In the end, all U.S. producers and grain merchants will suffer as customers look elsewhere for better grain to meet their needs.

Shortcomings in the U.S. standards must be corrected. Our customers must be confident we will treat them fairly. Progress in this direction has been made since passage of the Grain Quality Improvement Act of 1986. However, progress has been slow. This is not surprising since grain merchants who hold an advantage under the present system naturally resist change.

A second fundamental problem is that our official grain grading system does not certify a number of quality factors important to overseas users of our grain. To state the problem differently, our existing system of numerical grain grades provides substantial information on the condition of grain but little about its true value to the end-user. To illustrate, the official 1987 Iowa soybean yield tests confirm that the protein and oil content of different

varieties of beans vary widely. Soybeans from varieties grown in Iowa in 1987 and graded as Nr. 1 had protein contents ranging from 37 to 42 percent and oil contents from 20 to 23 percent (dry matter basis). Clearly, there can be a wide spread in the processing value of Nr. 1 beans -- or beans of any other numerical grade.

In recent years grain testing equipment has been developed to quickly measure a number of these value characteristics not included in the factors used to determine numerical grades. They include not only protein and oil content, but also starch content, total energy, and resistance to breakage. These are some of the factors that determine the profitability of processing or feeding a particular lot of grain. However, with the notable exception of protein content in wheat, the U.S. official grain grading system does not test or certify these characteristics.

All such tests are technically feasible and available, but overseas buyers must depend on private laboratories for data. And for precisely this reason there is an increasing reliance on private inspections. The point of importance here is inconsistency. Our government certifies tonnage, damage, foreign material, test weight and moisture content. We do not, however, consider it necessary to provide, even

on special request, information on these and other characteristics. For consistency we should test and certify all or none, preferably the former. The Federal Grain Inspection Service is making progress preparing for additional testing, but progress is slow and there seems to be no great sense of urgency.

The third fundamental problem, closely related to the first and second, is a slow rate of progress toward implementing the basic principles set forth in the Grain Quality Improvement Act of 1986. Consider two principles from this act:

1. "It is --- the policy of Congress to promote the marketing of grain of high quality to both domestic and foreign buyers; ---."

2. "--- the primary objective of the official United States standards is to certify the quality of grain as accurately as practicable; ---"

These are dramatic changes from previous policy. Prior to 1986 the words "grain quality" did not even appear in the Grain Standards Act. A point of importance is that up to now the USDA does not seem to have made a real commitment to achieve these new policy goals.

The paper accompanying this testimony lists numerous ways in which present standards do not meet the goals, particularly the second. Three will illustrate that point:

1. The U.S. standards define a whole kernel of grain as one from which not more than 25 percent is missing.

2. A yellow soybean is defined as a bean which is either yellow or green in color.

3. A mixture of 50 percent broken soybeans, 10 percent oats and 40 percent topsoil meets the current official definition of soybeans.

Clearly the goals set forth in the 1986 amendments have not yet been achieved.

How can one speed progress toward solution of these problems? Two general approaches come readily to mind. One involves new detailed legislation to attempt to correct deficiencies. The other uses increased Congressional oversight and public pressure to bring about the desired change.

I believe Congress should not choose the course of writing detailed legislation. The subject is too technical and complicated. The best solutions are not obvious. Detailed legislation, though well intentioned, could make serious mistakes which would be difficult to correct. A legislative solution should be the last resort. A better course is to seek more rapid improvements through administrative action. However, steady change will occur administratively only if there is continued public pressure and intense Congressional oversight. This is necessary to balance the prevailing grain industry influence on USDA to resist change.

Fortunately consideration of legislation to reauthorize the Federal Grain Inspection Service and recodify other provisions relating to grain standards which are now contained in laws other than the Grain Standards Act provides an opportunity for the Committee to address grain quality. Minor amendments could promote thoughtful administrative change.

I believe modernization of our grain standards would be accelerated substantially by legislation which provides for the following:

1. The reauthorization bill should include more specific direction to USDA on the required membership of the grain standards advisory committee. Presently the law does not require any diversity of interests among members. To assure balanced discussions and sound recommendations a strong case can be made that committee membership should include representatives from all segments of the industry and its customers. The interests represented should include producers, grain merchants both large and small, domestic processors and feeders, grain exporters, grain specialists from the universities, private grain inspectors, and overseas buyers and users of our grain and oilseeds. Currently the committee membership does not particularly favor one segment over another in term of number. However, some very important segments such as academia and foreign customers are not represented. Including representatives of foreign users is particularly

important if we are serious about trying to meet our customers' needs. Consideration should be given to expanding slightly the number of members (there are 12 currently) in order for all segments of the industry to be represented.

2. The reauthorization bill should provide for a strengthened program of Congressional oversight to monitor progress by USDA in achieving the policy goals set forth in the Grain Quality Improvement Act of 1986. When the U.S. is consistently marketing grain of high quality and our standards accurately certify the true quality of grain, as the Act requires, our problems will be solved. The strengthened program could well include an annual written report by the Secretary, in each of the next three years, setting forth progress and the extent to which the 1986 goals have not been met. The written report should be supplemented by annual congressional hearings on the subject of grain quality.

A subject not directly related to grain standards but deserving comment at this time is that of providing financial incentives to farmers for producing and delivering high quality grain. Many experts believe premium prices are the key to improving grain quality. I personally hold this view. Most grain merchants oppose premiums but favor the present system of discounts for low quality.

I raise this subject because the Minnesota Legislature recently passed a bill mandating premiums. This is the first law of its kind in the U.S. The law requires grain merchants to pay a premium for high quality on any grading factor for which discounts are levied for low quality. This law will have some interesting side effects, since no adjoining state nor the Commodity Credit Corporation (CCC) now pay such premiums. One predictable result will be that some high quality grain from adjacent states will flow into Minnesota for sale. More important, more low quality grain will flow into CCC stocks.

In my view the tide has begun to turn and further change involving premiums is inevitable and a positive development. At this point one of the most constructive things that could happen would be for the CCC to begin paying premiums for high quality just as they now charge discounts for low quality.

My comments have been quite critical. In closing, however, I want to assure the Committee that I have the highest professional and personal regard for Kirk Miller, Administrator of FGIS, and for that Agency. My dissatisfaction with the rate of progress in modernizing our grain grading system should not be construed as condemnation of FGIS. An important point is that FGIS, like all Federal Agencies, responds to the pressures bearing on it. Unfortunately, up to now we have not brought to bear enough influence on the side of change. This reauthorization hearing can play a significant role in that regard. In fact, the primary purpose of my testimony today is to provide the type of public support necessary if FGIS is to successfully implement the principles set forth in the 1986 Act. I hope the Committee as well will continue to press for positive change.

I again thank the Chairman for the opportunity to testify.

Grain Quality: Adjusting to Change, a paper submitted by Cooper Evans follows:

GRAIN QUALITY: ADJUSTING TO CHANGE.

Submitted by Cooper Evans

* GENERAL.

Our official United States grain standards and procedures are inadequate for the times. They evolved many years ago in a simpler age and have changed very little. They have fallen behind in two respects.

First, our standards and procedures do not take into account the fact that no longer is the United States the dominant grain merchant in a world chronically short of grain. Today our monopoly is gone.

We are now one of many merchants in a world that can produce an abundance of grain in many countries. This makes grain quality far more important than it was in the past if we wish to compete in world markets.

Second, the standards do not reflect the demands of our increasingly sophisticated foreign customers for more detailed information on the intrinsic value of grain purchased from the United States. Today these customers

are not nearly as interested in the numerical grade assigned to a cargo of grain as in the protein, oil, and starch content. Such factors currently have no role in our grain grading system. This paper explores these problems in more detail.

* CUSTOMER DISSATISFACTION WITH QUALITY.

Many foreign buyers are dissatisfied with the quality of grain they purchase in the United States. As a result, these overseas customers tend to shop elsewhere in times like these when there is a surplus of grain in the world and there are many other sources of supply.

Unfortunately, this surplus is likely to persist. If we in the United States are to maintain our share of world grain markets under these conditions, we must understand the dissatisfaction of our customers and what must be done to regain their confidence.

A point of importance is that a major complaint of foreign customers is not that they are unable to buy grain of high quality from the United States, as many people seem to believe. The real complaint is that regardless of whether they order grain of high or low quality they often do not receive the quality for which they have paid. There are solid grounds for this complaint.

* QUALITY PROBLEMS INHERENT IN THE UNITED STATES STANDARDS AND PROCEDURES.

Another misconception is that the blame rests largely with the export elevators. Actually there is overwhelming evidence that virtually all grain leaving the United States technically meets our national standards and the terms of the export contracts under which it is sold. But great emphasis must be placed on the words "technically meets" the standards and terms.

This gets at the heart of the matter. The truth is that the official United States grain standards and procedures for determining grain quality have been flawed for many years. They were written in a manner which virtually guarantees that a buyer can be deceived if a sophisticated grain exporter chooses to do so. The temptation is great to legally ship grain of a quality lower than called for by an export contract, for the profits can be large.

* PROCEDURES FAVOR UNITED STATES SELLERS.

To illustrate how substandard grain can be legally exported, consider the official procedures for determining whether a sublot of grain scheduled to go aboard a vessel at a terminal equipped with loading bins meets the required

specifications. This determination is made by carefully examining and testing a small sample, one of two taken from the grain. The sublot usually contains several million pounds of grain. The sample weighs a bit over two pounds -- far too little for a high probability that the sample is truly representative of the sublot. If the sample passes all of the tests, as determined by the Federal Grain Inspection Service, the grain is approved and loaded aboard the vessel. If the sample fails the tests the sublot is not rejected, as one might expect. Instead, upon request of the exporter the second sample is tested to determine if it meets the specifications. If it does, the grain is loaded. Should the second sample also fail the tests, and the elevator is equipped with loading bins, the sublot can merely be moved to an adjacent loading bin and new samples taken during the process of moving. Then these new samples can be tested in a continuing search for one which will pass and allow the grain to be legally put on board the ship. Permitting such a search for an acceptable test is a statistical travesty. The procedure allows a high probability that the quality of a cargo of grain, even though officially certified by the government of the United States, will not actually meet the specifications of the export contract.

To make matters worse, the official procedures contain other loopholes. To illustrate, a contract may call for grain with a maximum permissible moisture content of 14 percent. If so, some sublots graded as containing as much as 14.5 percent may be deliberately and legally loaded. Similarly, if specifications require not more than 4 percent broken corn and foreign material, the official procedures permit some sublots graded as containing 4.6 percent to be included in the cargo.

Small wonder our customers are dissatisfied and now come to the United States for grain only reluctantly. Clearly the statistical soundness of our official loading procedures must be improved.

* STANDARDS MISLEAD FOREIGN END USERS.

Unfortunately, problems are not limited just to loading procedures but extend to official grain standards as well. Rounding of numbers provides a good example. Until very recently the standards stated that the amount of dockage present in wheat would be rounded downward to the nearest full percent or half percent. Thus, 1.49 was rounded to 1 percent and 1.99 to 1.5 percent. Similarly, the amount of foreign material in barley, rye, and sorghum is rounded downward to the nearest full percent, as is the percentage

of split soybeans. All of these roundings overstate quality.

Determination of the extent of insect infestation in grain is also biased against the purchaser. Under United States standards only live insects are counted. Dead insects are disregarded, in spite of the fact that flour millers complain that dead insects make dark spots in flour just as live insects do.

In determining the amount of stinkbug damage to soybeans the first step is to count the number of beans stung by stinkbugs. That number is then divided by four.

Even the way grains are defined can favor the exporter. As an example, the official definition of soybeans states that soybeans are a "grain which consists of 50 percent or more of whole or broken soybeans which will not pass through an 8/64 inch sieve and not more than 10 percent of other grains for which standards have been established ---."

This means that a mixture of 50 percent broken soybeans, 10 percent oats and 40 percent Iowa topsoil would legally meet the definition of sample grade soybeans.

It is unlikely that a mixture exactly like the one described here would ever actually exist. However the example is important since it illustrates a loophole that permits blending abuses. The point is, current law prohibits addition of foreign material to grain at export elevators but does allow addition of sample grade grain. The mixture described above could legally be blended at an export elevator.

The problem of soybean definitions is further complicated by the fact that the standards define yellow soybeans as beans which are "yellow or green" in color. This permits immature green beans to qualify as yellow beans in sample grade blending material.

Comparable problems exist in the definitions relating to corn. The official U.S. standards for corn state that Nr. 1 corn shall not contain more than 2 percent broken corn and foreign material. So a buyer can expect Nr. 1 corn to contain 98 percent whole kernels, right? Not so. Why? Because the official definition of corn states that corn must contain only 50 percent whole kernels, and the standards define "broken corn" as material passing through a 12/64 inch sieve. However, many broken kernels are larger than 12/64th of an inch.

To make matters worse, a whole kernel is defined as one from which not more than 25 percent is missing. In short, the official standard would allow a cargo of Nr. 1 corn to consist entirely (100 percent) of kernel fragments.

Obviously some elements of approved procedures and official standards are better suited to shortchanging customers than to pleasing them.

A customer can also be surprised by the amount of especially undesirable contaminants in our grain. For example, the standards currently contain the statement,

> "U.S. Sample Grade shall be corn which -- in a 1,000 gram sample (about 2.2 lbs.) contains 8 or more stones which have an aggregate weight in excess of 0.20 percent of the sample weight, 2 or more pieces of glass, 3 or more crotalaria seeds (Crotalaria spp.), 2 or more castor beans (Ricinus communis), 8 or more cockleburs, 4 or more particles of an unknown substance(s) or a commonly recognized harmful or toxic substance(s) or animal filth in excess of 0.2 percent -- ".

This means that a bushel of corn grading U.S. Nr. 1, 2, 3, 4, or 5 could conceivably contain 178 stones, and 25 pieces of glass, and 51 crotalaria seeds, and 25 castor beans, and 178 cockleburs, and 76 particles of an unknown substance(s) or a toxic substance(s), or animal filth.

This is, of course, a ridiculous example that would never actually occur. However, the point is that the official U.S. standards should not suggest the possibility of ridiculous examples. Clearly, this portion of the standards should be tightened by providing a small cumulative total allowance for all such contaminants. To illustrate, the standard could provide that a sample containing a total of 2 pieces of any or all of the above contaminants would be classified as Sample Grade. Similar changes are needed in the standards for most other grains as well.

Even the U.S. official appeal procedure offers little opportunity to the buyer for a fair hearing. The procedure consists only of grading a duplicate sample taken at the time of loading and does not address the real issue -- the potential for a significant deterioration in quality after the point of final elevation and during shipment. The review process is so meaningless that dissatisfied customers often do not file a formal complaint. Therefore, some FGIS reports stressing the high quality of grain

exported from the U.S. are of doubtful validity. They are based only on the small number of formal complaints received. This is not an adequate measure. Informal complaints are also an important reflection of customer satisfaction and must be included in any meaningful analysis.

* GRAIN STANDARDS AMENDMENT OF 1986 -- ENCOURAGING SIGNS OF CHANGE.

There are, however, encouraging signs of change. The Grain Standards Act was amended by Congress in 1986. The amendment includes new statements of principle which are of great significance. The Act now says that the principal purpose of grain standards shall be:

> "To describe the true condition of grain as accurately as practicable".

More specifically the purposes as set forth in the Act are:

> "(a) to define uniform and accepted descriptive terms to facilitate trade in grain;
> (b) to provide information on storability;
> (c) to offer users information on end-product yield; and

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(d) to provide the framework necessary for markets to establish grain quality improvement incentives."

Clearly, present standards and procedures have not yet been brought fully into compliance with the 1986 Act.

However the Act has led to a great flurry of activity in the Federal Grain Inspection Service. A number of proposed changes in official standards and procedures have been drafted and published in the Federal Register for public comment prior to final adoption. These changes would go a long way toward correcting the deficiencies noted in this paper. Unfortunately, few concerned citizens see the Federal Register, let alone comment on proposed changes. However, the major grain exporters read the Register carefully and comment in great detail. Predictably, these special interests often resist changes. Those who favor the status quo are vocal and have powerful influence in Congress and the Department of Agriculture. It remains to be seen how rapidly the Federal Grain Inspection Service can bring about needed change. However, up to this point the Inspection Service seems determined to implement the 1986 Act.

* GRAIN STANDARDS AND PROCEDURES DIFFER AMONG COUNTRIES.

Another difficulty with grain standards is that they vary in detail from country to country around the world. This can lead to serious misunderstandings between sellers and customers.

The calibration of meters to measure the moisture content of grain is a good example. In the United States such meters are calibrated differently than meters in many countries which buy from us. Corn exported from the United States testing 14 percent moisture on our meters will test about 14.7 percent moisture on the meters of purchasers in many countries of the world.

Another difference is the way damaged kernels are defined. In the Far East a discolored soybean is generally considered a damaged bean. In the United States a discolored bean is classed as damaged only if the interior of the bean as well as the hull is discolored. It should be noted that here again the sophisticated exporter in the United States has an opportunity to take advantage of an unsophisticated overseas buyer. Frequently the net effect of these country-to-country variations is to leave our customers with the feeling they have been shortchanged.

* TENDENCY OF CORN TO BREAK IN HANDLING.

There is a tendency for grain, particularly corn, to break and pulverize as it is handled and moved through export channels. Numerous studies have demonstrated a truly dramatic increase in broken and pulverized kernels as corn is moved from the Iowa-Illinois area down the Mississippi River and overseas to our customers around the world. This is true even of identity-preserved shipments of corn that are not blended with other grain at the export elevator. It is not unusual for a shipment which leaves a farm in the Midwest containing two percent broken corn and foreign material to contain 10 percent of such material when it reaches the retail customer in Europe or the Far East -- the increase caused solely by breakage in handling. The customer is always displeased to receive such grain because its storage life is short, and it is very likely to heat and mold. Unfortunately, in the United States little emphasis has been placed on developing corn varieties and handling procedures to minimize kernel breakage.

* TIGHTEN STANDARDS TO MINIMIZE DETERIORATION IN TRANSIT.

It is important to note that as yet no legislation has been adopted or changes proposed by FGIS to address two major shortcomings of our national grain merchandising system.

These problem areas are:

- One of the most common complaints of overseas users of our grains is that spoilage or undesirable chemical changes occur in cargoes of U.S. grains because very wet grain has been blended into these cargoes. This causes problems even though the average moisture content of a cargo remains at an acceptable level. This must be addressed. One approach is to limit the permissible difference in moisture contents of grains that may be blended. Four percentage points has been suggested by some authorities. Another approach is to limit the maximum variation in moisture among kernels constituting a cargo or a lot of grain. More testing needs to be done of equipment suitable for measuring such moisture variations, but such equipment will soon be in the field, probably during 1988. A third approach would be to define corn and soybeans as grain containing not more than 14 (?) percent moisture. With such a system grain of higher moisture would not be available for blending. Brazil approaches the problem in this manner. A high priority should be given to bringing about change to address this problem.

- At present there is nothing to prevent the export from the U.S. of officially certified cargoes of grain which are known by FGIS to be <u>absolutely certain</u> to spoil before they reach their destination.

An example would be a cargo graded U.S. Nr. 3 yellow corn containing only 10 percent completely whole (unbroken) kernels, having maximum allowable broken corn and foreign material, with 16 percent average moisture content and a major fraction of kernels containing over 18 percent moisture, loaded hot, and destined for a long voyage through the tropics. FGIS has no authority to refuse to certify or to prevent such shipments. This constitutes totally unacceptable national policy. FGIS should at least be given authority to test to identify such lots and to withhold certification, according to objective criteria established by the Administrator.

* IMPORTANCE OF INHERENT VALUE CHARACTERISTICS.

Rapidly changing world grain markets bring pressure on standards from a totally different direction. Much of this pressure results from development of new testing equipment. This equipment can quickly measure grain characteristics which were difficult and expensive to gauge in the past. We can now measure electronically, using near infrared technology, factors such as protein, oil, and starch content. Traditionally these measurements required slow and expensive laboratory analysis. As a result, these factors have in the past played essentially no role in official U.S. grain standards and procedures. They still

do not, with the exception of the current U.S. practice of reporting protein content of wheat on an export certificate when requested by a purchaser.

Our foreign customers have been quick to adopt the new faster technology for purposes going far beyond protein content of wheat. As a result, these customers are now routinely asking for information not considered in our standards and not available on our export certificates.

To illustrate, we in the U.S. classify grains by numerical grades, usually Nr. 1 through Nr. 4 or 5. Typically, these numerical grades are determined by:

1. Test Weight (lbs./bushel),
2. Percentage of broken grain,
3. Percentage of foreign material, and
4. Percentage of damaged kernels (damage other than breakage).

These factors and the resulting grades provide considerable information about the condition of grain but not much about inherent value.

The end-use value of grain is better measured by the percentage of protein, oil, starch, etc. and by energy content and resistance to breakage. These are the characteristics that determine the profit or loss to be realized by processing or consuming a cargo of grain.

These are the values our customers want to know when they buy grain. At present they must go to private laboratories to obtain the desired information, and they are doing so. However, this is not a satisfactory arrangement to our customers and is not in keeping with long-standing U.S. policy of officially inspecting export grain to determine if it meets the contract requirements of our overseas customers.

The Federal Grain Inspection Service (FGIS) is developing procedures for measuring protein and oil content in soybeans. The goal is to be able to provide this information to overseas buyers of soybeans within 18 months. This is a constructive development. However, it is important that FGIS attach a high priority not only to this effort but also to approving procedures for providing other information as well. Our customers want to know value characteristic on other grains in addition to soybeans. Also needed is data on properties other than protein and oil content.

Making this information available to our customers now can substantially strengthen the position of U.S. grains in world markets.

* GRAIN QUALITY, A KEY TO RETAINING MARKET SHARE.

Correcting all of these deficiencies and restoring confidence among our overseas customers will take time. Necessary changes in this country will include altering attitudes and practices of long standing as well as improving our official grain standards. Substantial capital investments will be required. And we cannot assume that when these things have been accomplished our export market will dramatically improve. But one thing is certain, we cannot effectively compete in today's world grain markets unless our customers feel assured of fair treatment when they buy grain in the United States. And if we want the U.S. to be the preferred supplier of grain we must provide information our customers seek on inherent value characteristics.

Senator CONRAD. Are you going to come back to Congress and participate in these oversight hearings?

Mr. EVANS. Well, that was not really what I had in mind.

Senator CONRAD. OK.

Mr. EVANS. That completes my testimony and thank you again for the opportunity to appear before the committee.

Senator CONRAD. Thank you very much. Let me raise with Dr. Phillips and you, Cooper, another issue which is of intense interest and concern to people in my State, both producers and the grain trade.

That was the change in protein measurement on wheat that occurred—without notice—in the middle of the season and left a lot of people holding the bag on very big money. We had a situation in which the change was made on the baseline for protein measurement and then there was a correction to adjust the change, half the way back to the original baseline. In that circumstance the change was done orally, on the phone, and we could not get verification of it in writing.

In fact the people who were told to make the change were told that they were not to speak to Members of Congress, were not to give answers. I frankly was very troubled by it at the time as something seemed to me terribly wrong with a procedure like that one.

Are you familiar with what happened in that instance, and what is your view of the timing of it and the way it was carried out?

Mr. EVANS. Well, I am not familiar with, nearly as familiar as you are, I think, Mr. Chairman, or others present, that particular situation, but I would like to comment on the subject in general, and my comment is along these lines.

That any effort to change the standards, to upgrade quality, is going to cause a problem purely by the fact that some people have an inventory of grain in the system, and that change is going to change the value of that inventory.

And generally speaking, as we go in the direction of change that we are talking about here today, the result will be a loss of value to the holder of that grain, and that is terribly important.

But my point here is that timing is very, very important as to when you make these changes, and in general, you want to try to do it when the inventory is at the absolute lowest point in the year.

Even that, with our substantial carryover stock, it is a problem. So, it is a difficult problem and I would suspect that regardless of when this had been done, you would have received a lot of complaints from someone who happened to be holding the grain at that time.

Senator CONRAD. Well, let me just echo what you have said. We all know that any time you have inventories, you are always going to have inventories, someone is going to get hurt. But timing is absolutely critical and there are ways of minimizing the adverse effect, and the way of minimizing is to do it when our inventories are lowest. We all know when that is, and I just think that is a clear message we ought to send.

Well, we have now spent a good deal more time than we had anticipated on the first two witnesses, but I want to thank you. I think this has been very valuable testimony.

I also want to commend you for the written testimony you have provided because it is excellent. It will be helpful to us as we move through the reauthorization process, and I think there are some changes that we are going to want to make based on the kinds of advice we are getting from people like you, who have spent a good deal of time reviewing the situation.

I think the suggestions that both of you have made, especially on the makeup of the panel, make excellent sense, and are things we ought to look at. Cooper, we ought to be focusing, too, on the oversight question that you raised. I think that makes very good sense, and we will seek to implement those suggestions.

Next we will hear from Kirk Miller who is the Administrator of FGIS, and welcome, Kirk. It is very good to have you here. I think we have heard from many—not only the witnesses here this morning, but others—that you have made a full-faith effort, that you have worked to make this system work efficiently and effectively, and we want to thank you for those efforts.

We know that there are, just like in everything in life, things that are not perfect, and you already have heard some questions that I have on things that have occurred in the past, and hopefully will not occur again.

We can discuss that later. Overall, we should note for the record that you have received high marks for willingness to deal with objectives that people have raised, and that you have made, as I say, a full-faith effort to make this system work.

So, with that, welcome, and if you would proceed with your testimony and then we will get into some questions.

And if our other guests will stay, because I think we may be able to get into a little bit of a discussion with Kirk that might be more productive if you participated in it, and Cooper, just make believe you are back in Congress and are a member here.

STATEMENT OF W. KIRK MILLER, ADMINISTRATOR, FEDERAL GRAIN INSPECTION SERVICE, DEPARTMENT OF AGRICULTURE, WASHINGTON, DC

Mr. MILLER. Thank you very much, Mr. Conrad. I appreciate your kind remarks, and I want to say that I share those compliments with the folks in the Agency that have worked very hard in the last 18 months to try to move as aggressively as possible in implementing the Grain Quality Improvement Act.

In deference to your time schedule this morning, I am going to simply make a very few brief remarks, and enter my entire prepared statement for the record.

Our statement today includes a summary of the 1981 and 1984 amendments to the United States Grain Standards Act, financial information, grain quality activities, technology transfer activities, safety, foreign complaints, Equal Employment Opportunity, and Advisory Committee actions.

In deference to your request to us to testify, we have also included some information regarding the actions that we have taken to try to correct the protein problems that we were having a year ago which resulted in a large number of foreign complaints, which have been eliminated at this point, I am proud to say.

We have also included information about the recent activities and chronology of events relative to actions that we either have taken or are taking to address grain quality issues.

We have also included the section on the technology transfer which talks about our efforts to evaluate and utilize new, evolving technologies to improve grain quality.

And I think with that I will retire from my formal comments and open it up for any questions that you, or any of the other members of the subcommittee might have this morning.

[The prepared statement of Mr. Miller, letter with questions from Senator Conrad, responses from FGIS to additional questions follow:]

Statement of W. Kirk Miller, Administrator
Federal Grain Inspection Service
United States Department of Agriculture

Mr. Chairman and Members of the Subcommittee: Thank you for the opportunity to appear before this Subcommittee today in support of amendments to the United States Grain Standards Act. These amendments, if enacted, would amend the United States Grain Standards Act to extend through September 30, 1993, the authority contained in section 155 of the Omnibus Reconciliation Act of 1981 and Public Law 98-469. These statutes give the Federal Grain Inspection Service (FGIS) the authority to charge and collect inspection, weighing and supervision fees, provide for the investment of trust funds in interest-bearing accounts, limit total administrative and supervisory costs which may be incurred to not more than 40 percent, and establish an advisory committee.

The national grain inspection system, a collaboration of Federal, delegated and designated State, and designated private agencies, operates efficiently and effectively in the delivery of its official services, benefiting the industry it serves and the public to which it is accountable. The grain inspection system encompasses approximately 5,025 employees. Of this total, as of September 30, 1987, 851 are FGIS employees and 4,174 are personnel from agencies and states designated and licensed by FGIS under the United States Grain Standards Act to provide inspection and weighing services. The 851 FGIS full- and part-time employees provide direct on-line inspection and weighing of grain at 59 export elevators. Eight delegated states employ approximately 2,114 employees who provide official services at an additional 30 export elevators. Under direct oversight, the remaining 2,060 employees of designated States and private agencies provide permissive inspection and weighing services.

This statement includes a summary of the 1981 and 1984 amendments to the United States Grain Standards Act, financial information, grain quality activities, technology transfer activities, safety, foreign complaints, equal employment opportunity, and Advisory Committee actions.

Omnibus Budget Reconciliation Act of 1981 (OBRA)

The amendments in the Omnibus Budget Reconciliation Act effective for the period October 1, 1981, through September 30, 1984, required collection of user fees to cover administrative and supervisory costs related to official grain inspection and weighing; imposed a 35 percent limitation on administrative and supervisory costs; authorized appropriations for standardization, compliance, and foreign monitoring activities; and required establishment of an advisory committee. Public Law 98-469, enacted October 11, 1984, extended the 1981 amendments through the end of fiscal year 1988, authorized the Secretary of Agriculture to invest sums collected from user fees, and increased to 40 percent the limitation on administrative and supervisory costs.

Appropriations - User Fees - Staffing

I would like to summarize for the Subcomittee some of the FGIS financial management activities since 1984. During this period the annual appropriation funds were increased by $84,000 from $6,936,000 to $7,020,000. This represents only a 1.2 percent increase because of the Gramm-Rudman-Hollings legislation.

User-fee authority has remained relatively constant at about $36.5 million. FGIS has completely repaid the $6 million supplemental appropriation in 1984 which recapitalized the revolving fund. The annual staff-year ceilings during the period 1984 to 1988 have been reduced from 940 to 768.

Limitation on Administrative and Supervisory Costs

Raising the limit on the amount of user fees for administrative and supervisory costs from 35 to not more than 40 percent of the total costs for inspection and weighing performed by FGIS is presently adequate because of FGIS cost-cutting measures. Presently, approximately 33 percent of administrative and supervisory costs are met from user fees. If the current volume of exports continues, the 40 percent limit should not be a problem, even with additional workload required by the Grain Quality Improvement Act of 1986.

Investment of User-Fee Reserves

FGIS has effectively used the authority granted in 1984 to invest user-fee reserves in interest-bearing accounts or in United States Government debt instruments. Since FY 1985, we have invested from $4 million to $5 million annually, from which we have received a total of more than $910,000 interest. Currently we have about $5 million invested in Treasury bills.

Current Financial Situation

Our current financial situation for activities financed by user fees is sound. This is the result of a number of productivity improvement actions and increased exports. We currently have retained earnings of $12.6 million, of which $5.0 million is invested as previously discussed. Consideration is being given to lowering FGIS fees charged for official grain inspection and weighing services in the United States.

Adequate funds have been appropriated for FY 1988 with emphasis being put on compliance activities and research in support of activities such as resolving the wheat classification issue. Appropriated funds are requested for FY 1989 at a level $1.2 million higher than in FY 1988 to implement new programs under the Grain Quality Improvement Act of 1986.

Grain Quality

Concern over grain quality is shared by the Congress, FGIS, and the U.S. grain industry. All three groups have initiated action to improve grain quality. Congress amended the United States Grain Standards Act in 1986 to prohibit: dockage or foreign material once removed from grain from being recombined with any grain, and dockage or foreign material from being added to grain. The 1986 amendment also required FGIS to publish a final rule to more accurately describe the level of insect infestation in grain.

To implement the United States Grain Standards Act amendments, FGIS published final rules which: prohibit recombining or adding of foreign material and dockage to grain once such material has been removed from grain (including prohibiting the addition of dust sweepings and binned dust to grain in export elevators at export port locations); prohibit blending one kind of grain with another except to fulfill mixed grain contract terms; permit blending broken corn that contains foreign material with corn provided that the foreign material was not added to the broken corn; permit recombining grain removed from a bin during coring with the same

kind of grain; and require recording the individual components making up "broken corn and foreign materials" in corn and "broken kernels, foreign materials, and other grains" in sorghum on the inspection log for export shipments and in the "Remarks" section of the official inspection certificate for nonexport.

A final rule to more accurately describe the level of insect infestation in grain was published in the June 30, 1987, Federal Register with an effective date of May 1, 1988.

Other grain quality improvement initiatives recently undertaken by FGIS include: reviewing the procedures for the detection and suppression of insect infestation; developing directives which deal with the safe and effective fumigation of railcars, barges, and ships carrying grain; revising the U.S. standards for wheat to require that dockage is certificated to the nearest 0.1 percent; establishing improved procedures for detecting the presence of treated grain in bulk grain marketed for human or animal consumption; tightening the interpretation of soybean damage; developing an improved, centralized quality control program that encompasses all segments of the official inspection system; and tightening the shiplot inspection plan.

The grain industry initiated a series of grain quality workshops which culminated in a report entitled "Commitment to Quality," issued in June 1986. The report contained 6 proposals and 13 recommendations. FGIS has continued to work closely with the grain industry on these grain quality issues. We have already implemented many of the proposals and recommendations, and we are conducting studies to determine whether others should be implemented.

Other grain quality initiatives will be considered following receipt of a report from the Office of Technology Assessment (OTA) which is expected to be issued this fiscal year. The OTA is conducting an exhaustive study to compare the U.S. grain marketing and export system with such systems from competing grain exporting countries.

Wheat Protein

FGIS has taken numerous actions in the past 18 months to improve its program for testing protein content of wheat. For example, in cooperation with U.S. Wheat Associates - the overseas marketing representatives of wheat producers - we conducted an extensive study to investigate foreign complaints of shortages in protein levels in U.S. shipments of hard red spring wheat. This major collaborative effort helped us make appropriate adjustments in the use of near infrared reflectance (NIR) analyzers for official protein testing.

In addition, FGIS held extensive training and refresher courses for Federal and licensed inspectors in the correct operation of the NIR instrument. A new handbook clearly detailing the correct procedures for operating NIR instruments was issued to all official inspection laboratories.

Automatic feeding devices were added to the grinders used to grind wheat samples prior to testing. This and other standardized procedures have greatly reduced the potential for human variability and improved the repeatability of results.

New national standard reference samples have been implemented in the field laboratories. These samples improve our ability to

keep all official protein instruments aligned with the official Kjeldahl reference laboratory at our Technical Center in Kansas City.

We have implemented new procedures for improved monitoring of export shipments and in December of 1987 FGIS finished implementing a new calibration for its protein instruments. The calibration differs from bias adjustments which are made routinely to keep instruments aligned. A calibration is a complex series of mathematical constants that are programmed into the electronic memory of the NIR instrument. It is this calibration that gives the instrument its ability to determine protein levels. The constants are developed with data on the wheat varieties being produced, environmental factors and other information. FGIS will be updating this calibration annually.

In fiscal year 1987, lower-than-certificated levels of protein in wheat was the most common complaint from foreign buyers on any U.S. grain. As a result of our actions, foreign complaints on wheat protein have been virtually eliminated.

Wheat Classification

Presently we are using morphological methods to classify wheat which are subjective and becoming less reliable because of the development of new varieties which may have been developed from more than one class. Under the auspices of the Wheat Classification Working Group, FGIS is researching procedures to more objectively classify wheat. The Wheat Classification Working Group is comprised primarily of grain trade organizations. One of the leading areas of consideration to improve classifying wheat is hardness. A number of different hardness tests are being investigated - grinding, crushing, sound, and near-infrared reflectance. Our Standardization Division is presently testing more than 15,000 samples representing all wheat classes. A number of tests are being conducted which will give us about 5.25 million data points. We are seeing a correlation of results which suggests that one or more of the tests can be used to help classify wheat.

After the research has been completed, the results will be analyzed by the Wheat Classification Working Group, which will make recommendations to FGIS. We are optimistic that these research activities will enable us to more accurately and efficiently classify wheat.

Quality Control

The quality control program is changing in many areas to improve confidence in the integrity of official inspection results. Automatic data processing and telecommunications capabilities are being developed to collect, analyze, extract, and report on field data more rapidly and accurately than before. Statistical quality control techniques are being adopted to better identify and eliminate system weaknesses. The wheat protein program has been the first to use and benefit from these changes. As the quality control program is centralized and standardized, all areas will experience more timely and useful monitoring.

A new blind sample monitoring program has been implemented. This program is designed to routinely evaluate the accuracy and consistency of the grading activities within FGIS.

Compliance Reviews

Compliance reviews are conducted to determine if field offices

are providing accurate, effective, and efficient services; implementing policies and procedures accurately and uniformly; and managing their monetary and resources programs in a cost-effective manner. These reviews also measure the effectiveness of field office management controls, monitor the implementation of grain handling practices under the Grain Quality Improvement Act of 1986, and determine if services are being provided without discrimination. While conducting reviews of field office circuits, FGIS evaluates the effectiveness of designated/delegated State and designated private agencies to perform official services under the U.S. Grain Standards Act. These evaluations are one tool used todetermine if the agencies are qualified for designation renewal.

Technology Transfer

Research and development activities involve contracts with research institutes and universities, cooperative agreements administered, researched and conducted by Agricultural Research Service (ARS). FGIS plans to continue to engage in and exploit opportunities for technology transfer where possible. The thrust of this activity is to replace subjective tests with objective tests to remove the human interpretative factor. In addition to the activities underway to objectively classify wheat, we are: field testing soybean oil and protein analysis by near-infrared reflectance (NIR); developing NIR calibrations for the determination of protein in barley, and protein, oil, starch and moisture in corn; developing more rapid and accurate procedures for determining the presence of aflatoxin in corn through the use of biotechnology-based diagnostic probes; using x-ray and immunoassay technology as a means of detecting internal insect infestation in grain; investigating the use of digital imaging for determining such things as net sound grain and damaged kernels; investigating dialectric, nuclear magnetic resonance and microwave techniques as possible moisture determination procedures; and developing instrumentation which will identify undesirable grain odors.

Safety and Occupational Health Program

The FGIS Safety and Health Program encompasses the related areas of industrial safety, industrial hygiene, workers compensation, employee health and fitness, employee assistance and counseling, and emergency preparedness. We have had a significant reduction in lost time accidents during the past year. We have an active safety and health training program for our employees with nearly all supervisors receiving 8-hour training during fiscal year 1988. Research in ways to minimize employee exposure to toxic materials and to minimize the risk of dust explosions is being conducted.

We were a major participant in USDA's biennial Safety and Health Conference in San Diego, California, from February 29 through March 4. Our Collateral Duty Safety and Health Officers participated in discussions involving emergency preparedness, serious mishaps at grain handling facilities, grain dust explosions, fumigant exposure, immunoassay testing, and health and wellness programs.

Foreign Complaints

FGIS investigates quality and weight complaints from foreign receivers of U.S. grain, meets with foreign purchasers of U.S. grain regarding quality and weight of U.S. grain exports, and

conducts educational briefings to explain the official U.S. grain inspection and weighing system.

The number and nature of complaints received from foreign buyers tend to vary from year to year, largely because of adverse growing and harvesting conditions. For example, excessive rains before and during harvest caused quality problems with soybeans in 1985 and 1986. Foreign buyers complained that U.S. No. 2 soybeans contained too many damaged kernels and did not meet their quality needs. We tightened our interpretive line for soybean damage which enhanced buyer satisfaction.

In 1987, we received a series of complaints on low protein in wheat. We conducted an extensive evaluation, including monitoring four wheat cargoes shipped to nine destination ports in Asia. As a result, changes were made in the monitoring and procedures of protein testing, which significantly lowered the foreign complaints.

In fiscal year 1988, we have received 15 foreign complaints on grain quality for a variety of reasons--no single grain or factor has predominated.

Equal Employment Opportunities

FGIS is aggressively pursuing actions to assure successful implementation of its Equal Employment Opportunity (EEO) program. Recruiting trips are being made to minority organizations and historically black colleges and universities. Job vacancy announcements are being sent to trade associations, grain companies, universities and colleges with high concentrations of potential black or Hispanic applicants. Our Standardization Division in Kansas City and Field Management Division in Washington, D.C., are currently recruiting women and minorities for several vacancies. We have contracted for wheat classification technical services with a vocational service organization which employs and trains handicapped people. In addition, we have contracted with a firm to provide us with automated data processing services. This firm is owned by a woman, who also is a minority. This is a small business "8a" company. We have established a field-based EEO working group designed to improve opportunities for women, minority, and disabled field employees. FGIS is committed to being a nondiscriminatory employer.

Advisory Committee

The FGIS Advisory Committee has been very beneficial in providing advice to FGIS. During fiscal year 1987 the Advisory Committee, which meets quarterly, addressed major issues, such as: implementation of the Grain Quality Improvement Act of 1986, uniform loading plans, wheat protein and classification, deceptive practices, and sorghum damage and odor. During its January 22 meeting, the Committee unanimously supported the extension of the 1981 and 1984 amendments. Since 1981, when the Advisory Committee was established, a total of 29 persons have served as members. This has resulted in FGIS obtaining advice from a broad base of backgrounds and interest. We anticipate that the FGIS Advisory Committee will continue

to be a valuable source of advice for FGIS in implementing the many programs under the United States Grain Standards Act.

Closing

Mr. Chairman, this concludes my statement. I will be glad to respond to any questions you or other members of the Committee may have.

PATRICK J. LEAHY, VERMONT, CHAIRMAN
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DAVID K. KARNES, NEBRASKA

United States Senate
COMMITTEE ON
AGRICULTURE, NUTRITION, AND FORESTRY
WASHINGTON, DC 20510-6000

May 11, 1988

Mr. W. Kirk Miller
Administrator
Federal Grain Inspection Service
United States Department of Agriculture
ATTN: Jim Bair
Confidential Assistant
Room 1095, South Building
P.O. Box 6454
Washington, D.C. 20090-6454

Dear Mr. Miller:

I appreciate your testifying before the Committee on April 29, 1988. As I mentioned at the conclusion of the hearing, enclosed are additional questions from Committee members which are being submitted to you for written answers. I would appreciate receiving your answers to the questions by June 1 so that the hearing record may be printed as soon as possible.

Thank you for your cooperation.

Sincerely,

Kent Conrad

Kent Conrad
Chairman
Subcommittee on Agricultural
Research and General Legislation

Additional Questions for
W. Kirk Miller
Administrator
Federal Grain Inspection Service

Hearing on FGIS Reauthorization
Subcommittee on Agricultural Research,
and General Legislation

April 29, 1988

1. During our hearing, we discussed the progress of the wheat classification study. Please detail the status of this effort, including the research organization conducting the study, and its funding and completion date.

We also discussed the possibility of renewing the national varietal survey of wheat, in the past conducted by the Economic Research Service. Do you intend to initiate such a survey? Will FGIS allocate funds necessary for the survey, or will you request an additional appropriation?

2. Apparently, there has recently been an increase in our imports of low-protein oats, particularly from Argentina. Is the research on protein testing equipment applicable for testing the protein of oats? Is the technology capable of single kernel protein testing?

If not, is FGIS, or any Federal agency, conducting research to develop a rapid testing methodology for protein quality for oats?

3. I understand that the 1985 farm bill required FGIS and OTA to independently study, using the same raw data, the types of grain quality attributes that buyers are interested in when purchasing grain for a particular end-use. What is the status of that report?

4. Are you going to incorporate FGIS's objective of improving grain quality, as authorized in the Grain Quality Improvement Act of 1986, in your mission statement? Would you be willing to consult with Congress before finalizing the updated statement?

5. What effect has the new wheat dockage tolerance levels had on improving grain quality and complaints by foreign buyers?

6. What results have you observed, in terms of improved grain quality and buyer satisfaction, since implementing the prohibition of recombining dockage and foreign materials to grain destined for export? How are export terminals handling the disposal of the dockage and foreign materials?

7. Should FGIS provide information which will assist buyers in predicting the condition of the grain upon its delivery?

8. If the new end-use testing techniques succeed in allowing FGIS to distinguish among different lots of wheat and it is discovered that varietal or quality blending is occurring, resulting in foreign buyers not getting what they want, what should be done:

Should the market impose its own discipline, or should the Government intervene?

Should blending of different varieties or qualities of grain be prohibited?

9. Would your describe your review of the cumulative sum quality control (Cu-Sum) method of inspecting large sublots of grain and planned changes?

10. What is the status of FGIS's evaluation of new Aflatoxin testing procedures?

11. I understand that the FGIS staff has been reduced significantly since the early 1980s, in an effort to reduce administrative costs. Is your agency adequately staffed to response to the sharp increase in U.S. grain exports?

United States Department of Agriculture
Federal Grain Inspection Service
P.O. Box 96454
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20090-6454

JUN 1 1988

Honorable Kent Conrad
Chairman, Subcommittee on Agricultural
Research and General Legislation
Committee on Agriculture, Nutrition,
and Forestry
United States Senate
Washington, D.C. 20510-6000

Dear Senator Conrad:

Enclosed are answers to the additional questions posed by members of the Committee on Agriculture, Nutrition, and Forestry and included with your May 11, 1988, letter.

If you have any further questions, please do not hesitate to contact us.

Sincerely,

David R. Galliart
Acting Administrator

Enclosure

Answers to Questions from the
Hearing on FGIS Reauthorization
Subcommittee on Agricultural Research,
and General Legislation of April 29, 1988

1. During our hearing, we discussed the progress of the wheat classification study. Please detail the status of this effort, including the research organization conducting the study, and its funding and completion date.

We also discussed the possibility of renewing the national varietal survey of wheat, in the past conducted by the Economic Research Service. Do you intend to initiate such a survey? Will FGIS allocate funds necessary for the survey, or will you request an additional appropriation?

Answer.

Of the projected 15,000 hardness survey samples, a total of 14,055 (93.7 percent) samples have been received at the FGIS Technical Center in Kansas City, Missouri. These include 5,496 Hard Red Winter wheat (HRW), 4,417 Hard Red Spring wheat (HRS), 2,098 Soft Red Winter wheat (SRW), and 2,044 White wheat (WW) samples.

A total of 14,970 samples have been processed through near-infrared reflectance (NIR) analysis which include 5,302 HRW, 4,339 HRS, 2,094 SRW, 2,031 WW, and 1,203 samples from North Dakota State University. (These 1,203 samples are a separate study from the 15,000-sample study.)

Some 12,129 of these samples have been analyzed on the single kernel hardness testers. In addition, 10 percent of the samples (an estimated 1,400) has been sent to Kansas State University (KSU) and the U.S. Grain Marketing Research Laboratory (GMRL) in Manhattan, Kansas, for single kernel analysis on these prototypes.

The Agricultural Research Service (ARS) sample analysis continues in search for constituent characteristics or factors which may correlate with class. Few promising leads have been uncovered in either rheological or physical-chemical testing areas. The Doty 1987 Crop Survey samples (approximately 800) were extensively analyzed for all these factors. A further set of approximately 100 varietal samples from the HRS and HRW wheat classes with similar and overlapping protein values is also being analyzed by the ARS laboratories.

Data collection on the hardness study samples should be completed by August 1, and reports on the performance of the KSU and GMRL machines are due at the FGIS Technical Center by August 31. The final report to the Wheat Classification Working Group will be available in September.

The national wheat varietal survey was conducted by the Statistical Reporting Service and the ARS every 5 years. The past report was issued in 1984. Future surveys were cancelled due to financial constraints. FGIS has no plans to initiate a survey or to allocate funds for the survey. If the need for a national survey remains, the Statistical Reporting Service should be contacted.

2. Apparently, there has recently been an increase in our imports of low-protein oats, particularly from Argentina. Is the research on protein testing equipment applicable for testing the protein of oats? Is the technology capable of single kernel protein testing?

If not, is FGIS, or any Federal agency, conducting research to develop a rapid testing methodology for protein quality for oats?

Answer.

The near-infrared reflectance (NIR) technology can be used to measure the protein content of oats. FGIS recently met with representatives from Quaker Oats who expressed a possible interest in having oats protein testing service available through the national inspection system. The Quaker Oats representatives agreed (1) to work with FGIS in determining whether there is a need for widespread protein testing and (2) to develop the necessary testing methodology. Determination of protein on oats would involve the same technology as wheat and soybean proteins with the added steps of dehulling the oats and then aspirating the dehulled grain to remove the hulls before grinding with a Udy grinder. A calibration would have to be developed for oats groats.

There is no accepted single kernel technology for NIR protein.

3. I understand that the 1985 farm bill required FGIS and OTA to independently study, using the same raw data, the types of grain quality attributes that buyers are interested in when purchasing grain for a particular end-use. What is the status of that report?

Answer.

The ARS/FGIS study on end-use quality attributes has been drafted and is being reviewed internally. We plan to release the report on or before June 3, 1988.

4. Are you going to incorporate FGIS' objective of improving grain quality, as authorized in the Grain Quality Improvement Act of 1986, in your mission statement? Would you be willing to consult with Congress before finalizing the updated statement?

Answer.

Yes. The FGIS mission statement will be revised to reflect the objective to improve grain quality. Before finalizing the statement, we will consult with Congress.

5. What effect has the new wheat dockage tolerance levels had on improving grain quality and complaints by foreign buyers?

Answer.

Data collected by the Export Grain Information System indicated the average dockage levels for 1987 decreased from 1986 average levels for Hard Red Winter wheat from 0.7 to 0.6 percent and White wheat from 0.7 to 0.6 percent. The average dockage levels increased from 1986 average levels for Durum wheat from 0.9 to 1.1 percent. Average dockage levels remained the same as 1986 average levels for Soft Red Winter and Hard Red Spring wheats. Average dockage results may not reflect an increase in grain quality; however, reporting dockage to the nearest tenth percent more accurately describes grain quality. Export dockage levels observed during the year are also dependent upon contract specifications. Sales contracts may discount any amount of dockage present in the shipment or establish discounts for dockage over a maximum limit. We have not seen a difference in the number of foreign complaints on dockage filed by importers.

6. What results have you observed, in terms of improved grain quality and buyer satisfaction, since implementing the prohibition of recombining dockage and foreign materials to grain destined for export? How are export terminals handling the disposal of the dockage and foreign materials?

Answer.

We have not seen a significant increase in grain quality since implementing the prohibition of recombining dockage and foreign materials to export grain. Export elevators, as a general rule, do not remove dockage from wheat but combine different quality wheat to achieve a uniform and acceptable dockage level. Dockage as a separate constituent, therefore, is not handled nor disposed of by export loading facilities on a routine basis. Foreign material is removed from coarse grains, and FGIS monitors the export loading facilities to prevent this material from being recombined with grain. Foreign material is generally shipped from the export facilities to unknown domestic destinations.

7. Should FGIS provide information which will assist buyers in predicting the condition of the grain upon its delivery?

Answer.

The Grain Quality Improvement Act stated, in part, that the Official U.S. Standards for Grain shall provide information to aid in determining grain storability and to determine end-product yield and quality. This information as currently in the standards and as developed for the future will assist buyers in predicting the condition of grain upon arrival at destination. For example, the current inspection system provides an average moisture level for an export cargo which gives the buyer general information on the condition of the cargo. In the future, single kernel moisture testing will be available which will enable the inspection system to provide more precise information on the variability of moisture levels within the cargo. This added information will further assist the buyer in predicting grain condition at destination.

8. If the new end-use testing techniques succeed in allowing FGIS to distinguish among different lots of wheat and it is discovered that varietal or quality blending is occurring, resulting in foreign buyers not getting what they want, what should be done:

Should the market impose its own discipline, or should the Government intervene?

Should blending of different varieties or qualities of grain be prohibited?

Answer.

Work continues on developing a quality related testing methodology for distinguishing wheat classes. If successful, the testing methodology will provide the necessary information so that the market can control unacceptable blending of different varieties, classes, or qualities. The current inspection system addresses the blending of wheat classes through the use of two grade determining factors (1) wheat of other classes and (2) contrasting classes. The limits for these factors have worked well over the years. However, the inability to distinguish certain varieties as one class or another has lessened the effectiveness of these limits. To correct this problem, we need to implement an objective testing method that accurately identifies wheat classes.

We believe the standards and testing procedures will provide the necessary information and guidelines so that the market controls unacceptable blending. We view this as the most productive, cost effective, and efficient approach.

9. Would you describe your review of the cumulative sum quality control (Cu-Sum) method of inspecting large sublots of grain and planned changes?

Answer.

FGIS contracted an independent statistician to review the current shiplot inspection plan. The statistician's recommendations were reviewed internally and discussed with producers, processors, and exporters. FGIS, with the assistance of the Agricultural Marketing Service, Marketing Research and Development Division, Statistics Branch, developed proposed changes to the inspection plan. These changes include (1) revising statistical tolerances based on new estimates of standard deviations, (2) modifying the review inspection process, (3) redefining inferior quality grain, (4) adding protein testing services, and (5) providing factor analysis more frequently during loading, resulting in smaller acceptable tolerances. FGIS is conducting an economic impact analysis of these revisions before soliciting public comment.

10. What is the status of FGIS' evaluation of new aflatoxin testing procedures?

Answer.

After the initial training session at the FGIS Technical Center in April 1988, each test site (Beltsville, Maryland, Belle Chasse and Lutcher, Louisiana) was sent 40 corn samples spiked with varying levels of aflatoxin. Analysis of these samples is complete.

Each test site is currently screening normal market channel samples for aflatoxin and submitting positive samples to the FGIS Technical Center. These samples will be distributed to other test sites for subsequent analysis.

Preliminary analysis of the data indicates that all of the test kits and the minicolumns are obtaining equivalent results. Testing will be completed by August 1.

11. I understand that the FGIS staff has been reduced significantly since the early 1980's, in an effort to reduce administrative costs. Is your agency adequately staffed to respond to the sharp increase in U.S. grain exports?

Answer.

FGIS has responded to the current increase in grain exports by shifting resources from our training oversight and quality control programs to meet the inspection needs of the export grain industry. Training oversight and quality control programs are currently being brought back to the levels needed to assure that the quality of service provided remains high. This procedure has allowed FGIS to meet all service request needs of the industry. FGIS has determined that a small increase in field staff will be needed and is recruiting to meet these needs. This recruiting gives FGIS an opportunity to focus on women and minorities to help correct underrepresentation in these areas.

Senator CONRAD. Maybe we ought to do this. Maybe we ought to start with the issue that I had raised earlier in talking to Cooper, and then what I would like to do is talk about some of the recommendations that we are getting from OTA, and recommendations that Cooper has made, about the Advisory Committee, and characteristics that ought to be included in our standards.

But Kirk, if we could, let's go back to that protein question. As you know, I was in contact with your office, and we certainly had an outcry about the change, and then the followup change, and how that was done.

And there was a real concern that the first change was made without notice, in the middle of the season, and that it was not handled by waiting until inventories were as low as they could be at the end of a season.

Then we had the second change, and the way that was handled was disturbing. Frankly, it was disturbing to me to have my office try to find out what had been done, and to call people who refused to answer any questions and said the change had been made orally, that there was a refusal to put it in writing.

Could you review what occurred there, or what your own internal analysis is of what happened and why it happened? What can we do to prevent something like that from occurring again in the future, or at least how can it be done in a way that reduces the dislocations that occurred?

Mr. MILLER. I will respond to the best of my recollection. The Office of Inspector General has been and still is reviewing this matter. I will share with you my recollections, to the best of my knowledge, of what happened.

At the time that we made the corrections, in April of last year, we had just completed an extensive investigation in conjunction with U.S. Wheat Associates into the overseas complaints that we were receiving from a number of foreign countries about protein deficiencies.

As a result of that study which substantiated the basic claims of the overseas buyers that they were being short-changed relative to protein, we analyzed the comparative data of our near-infrared reflectance instruments out in the field, and our base reference method which is the Kjeldahl Laboratory in our Technical Center in Kansas City, and determined that in fact we were overstating protein values with the NIR instruments in the field.

Senator CONRAD. Do you recall what the variance was?

Mr. MILLER. My recollection is that it was approximately 0.35 percent. We took this information to the FGIS Advisory Committee, with the recommendation that we would adjust for about approximately one-half of the 0.35 percent, or about 0.20 percent, through an adjustment to the baseline on our reference methods that we were using in the field. We would achieve the other 0.15 percent through corrections in operating procedures.

At the same time, we initiated some research that had uncovered the fact that the temperature of the sample, at the time it was being ground and analyzed in the near-infrared reflectance device, affected the protein values.

As it turned out, we implemented a considerable number of new operating procedures around the 1st of May, including a new pro-

tein inspection reference manual, which included new procedures for grinding samples, and establishd a fixed waiting period after the samples were ground before they are analyzed in a near-infrared device.

We also included information regarding the laboratory environmental conditions, and other operating procedures. We required all of the official inspection users to install uniform feeders for the grinders. Approximately a month or two after the new operating procedures went into effect, it was determined that we had overcompensated by making the operating changes and the changes to the baseline. There had been an overcorrection.

Senator CONRAD. Could you give us the amount of the overcorrection from your follow-on analysis?

Mr. MILLER. It seemed to be approximately a 0.10 percent across the system. Of course it varied. What has made it so difficult to try to determine is the fact that it varied from service point to service point, depending upon the operating procedures that the individual operators were using at the time.

Some operators would grind samples in what was established later as the proper method, and others were not. If in fact they were grinding in the proper manner, they may not have had as much change to make later on as others made.

I am told that that was a reason why the instruction that was given to the field in June or July of last year, to bias the NIR instruments on the high side of the acceptable range, was to compensate for any of those service points where there was a need to make a correction, but yet it was not a uniform correction required for the entire system.

Senator CONRAD. Can you understand the real concern that was raised when people were told verbally to make a change, and were not given a written authorization, and that when Members of Congress inquired, they were told that they had been ordered not to give answers?

I think the kind of suspicion that that raises is terribly unhealthy, and I am sure you understand that it is the kind of thing that just raises questions that would be best never having been raised.

Mr. MILLER. I agree with you, and I would only say that there were a number of things that were factors at the time, that were presented to me.

The fact that every day these operators bias their instruments back to a baseline, and every day these operators make the adjustment, in some cases a 0.10 percent, in some cases 0.15 percent. It varies every day, based on what the readings are on an individual instrument on that day, and we were told that this occurred on a daily basis, that this was a common operating practice, to make adjustments.

We were also told that oral instruction had been given in the past, and the real problem, from my standpoint, was that I was never really told that we were making this type of a change by an oral instruction, and that no followup was given.

The comments that came back in to me were comments that rather than bias on the high side of the instrument readings, or

the reference baselines, we should change the baselines. We should make the adjustments by raising or lowering the baselines.

We have minutes from meetings in which I participated, when the issue was brought up with me. I was not aware of the fact that the State of Montana, for instance, had made a request to the FGIS field office for a written instruction.

That was never communicated to me until approximately last November.

Senator CONRAD. Let me just share this experience with you. I talked to someone who I have known for a long time, and who I trust implicitly, and who is one of the persons that was given the oral instruction. He asked for a written followup and was denied it.

He talked to me—talked to my office—and said, look, I have never in my career had something like this happen. He said I am personally shocked, and it makes me very nervous about what is going on in the Service.

I hope we never have a repetition of that. Again, when we inquired, we were told by people in the system that they had been ordered not to answer questions from Members of Congress.

Mr. MILLER. They were not ordered by me to do that.

Senator CONRAD. All right. Well, again, I think this is something that hopefully is behind us. Again, I personally have faith and confidence in you, and I think everything I have been able to ascertain and determine about you, and the way you have performed, is positive.

If we had not gotten that kind of reading on you, the atmosphere would be a little different here today, but that one incident was troubling, and troubling to other Members as well who were involved. You know, the Senators from Montana were very concerned about that as well, and again, hopefully, that is behind us.

Mr. MILLER. Senator Conrad.

Senator CONRAD. Yes, sir.

Mr. MILLER. I would like to say that this issue was thoroughly aired in a congressional hearing last November. Also, the Inspector General has been conducting a review of this situation, and I understand they have communicated with some of the Members on the Hill regarding their progress on that investigation.

Subsequent to that, we have had a visit in my office from the leaders of the Montana Grain Growers Association. I have a letter from them that I do not think would be appropriate to put, necessarily, into the record of the hearing here today, but I would like to share a portion of it with you. In their letter they say: "I believe that you clearly point out to us that a portion of our allegation was incorrect, and we understand now that the 2/10ths of a percent correction was necessary and we apologize for that mistake."

And I would like to offer this to you, and have it known here, in a public meeting, that the folks who were making the most critical allegations of misconduct on our part have since apologized for at least a portion of those comments.

Senator CONRAD. Yes. And I think that has been acknowledged already, and I think clearly is on the record. It is quite appropriate for you to bring up again that a part of what was raising concern has already been dealt with, and there was a misunderstanding.

The matters that I have related are things that we also have hopefully laid to rest. It is something that occurred, will not occur again, and as I say, I hope we can put this behind us and go on from here.

That matter I think we have dispensed with, and you have assured me that the other matter I raised, the refusal to provide written instructions, will not happen again. I am confident it will not.

Let's turn our attention to some of the recommendations that we have heard here. You have had a chance to listen to what OTA is finding in its study and the kind of recommendations it is making.

You have had a chance to hear Cooper and what he is talking about. One of the things that we have heard is that perhaps it is appropriate to adjust the membership of the Advisory Committee. I would be glad to get your reaction to that.

Mr. MILLER. We are currently operating with an Advisory Committee that represents a broad cross-section of the producer interests, and the merchandising and exporting trade. We have a representative of the private inspection agencies on the Advisory Committee, and we also have an attorney who represents overseas buyers, who is an alternate to the Advisory Committee.

As we look at the makeup of that committee, we have, as members, two farmers, two exporters, four processors, three country elevator operators, and one private inspection agency person.

As alternates, we have four farmers, two exporters, three country elevator operators, one foreign buyer representative that I alluded to, one university person, and one State inspection agency person.

We feel that the current Advisory Committee is broad in its composition, but we certainly would not have a major objection if the Congress would like to broaden the base of the committee to include some academicians. We would welcome that participation.

But we would like to encourage Congress to keep in mind that the current number is very workable. The number of 12——

Senator CONRAD. We are at 12, aren't we?

Mr. MILLER. Yes, there are 12 members.

Senator CONRAD. Is there an alternate for every member?

Mr. MILLER. Yes, there is. We would be happy to submit that for the record.

Senator CONRAD. All right. Let's enter that into the record so that we have a complete record here.

[The material follows:]

FEDERAL GRAIN INSPECTION SERVICE
ADVISORY COMMITTEE

1. BRUCE E. BROGOITTI
   Manager
   Brogoitti Elevator Co., Inc.
   P.O. Box 367
   Helix, OR 97835
   (503/457-2131)

2. PATRICK G. CORRIGAN, JR.
   President
   American Association of Grain
   Inspection & Weighing Agencies
   3906 River Road
   Cincinnati, OH 45204
   (513/251-6571)

3. BENNY ECHELBARGER
   Manager
   Reardan Grain Growers, Inc.
   P.O. Box 185
   Reardan, WA 99029
   (509/796-4141)

4. ARVID L. HAWK
   Grain Manager
   Commodity Marketing Division
   Cargill, Incorporated
   Dept. 1, P.O. Box 9300
   Minneapolis, MN 55440
   (612/475-6954)

5. DAVID B. LONG
   Vice President
   A. E. Staley Manufacturing Co.
   P.O. Box 151
   Decatur, IL 62425
   (217/421-2646)

6. R. E. McCANN, Jr.
   Executive Vice President
   and General Manager
   Affiliated Rice Milling, Inc.
   P.O. Box 1446
   Alvin, TX 77512
   (713/331-6176)

7. GARY W. McKINNEY
   President
   Garvey Elevators, Inc.
   Box 1948
   Hutchinson, KS 67504-1948
   (316/662-5411)

8. DONALD L. MENNEL
   President and Treasurer
   The Mennel Milling Company
   P.O. Box 806
   128 West Crocker Street
   Fostoria, OH 44830
   (419/435-8151)

9. FRED C. MIDCAP
   Farmer and part-owner in
   Colorado wheat farm
   5143 Rd. 3
   Wiggins, CO 80654
   (303/432-5528)

10. ROBERT L. PARKER
    President
    Paris Milling Grain Co.
    P.O. Box 1218
    Paris, TX 75460
    (214/784-6656)

11. MAX R. SPENCER
    Vice President, Operations
    Continental Grain Company
    World Grain Division
    277 Park Avenue (37th Floor)
    New York, NY 10172
    (212/207-5277)

12. JOHN WHITE, Jr.
    President
    Illinois Farm Bureau
    1701 Towanda Avenue
    Bloomington, IL 61701
    (309/557-3211)

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ALTERNATES TO
FEDERAL GRAIN INSPECTION SERVICE
ADVISORY COMMITTEE

1. ROGER E. ASENDORF
   Owner/Operator, Grain Farm
   Route #1
   St. James, MN 56081
   (507/375-3700)

2. DAVID A. BOTWINIK
   Partner, Pavia & Harcourt
   600 Madison Avenue
   New York, NY 10022
   (212/980-3500)

3. HARLAN E. CLEMMONS
   Manager, Busboom Grain Co., Inc.
   P.O. Box 218
   Potomac, IL 61865-0218
   (217/987-6341)

4. WILLIAM JERRY COTTER
   Director of Operations
   Port of Corpus Christi Authority
   P.O. Box 1541
   Corpus Christi, TX 78403
   (512/882-5633)

5. MARION E. HARTMAN
   Owner/Operator, Grain Farm
   8761 Dragoo Road
   Hillsboro, OH 45133
   (513/393-2139)

6. TOMMY D. HOPKINS
   Director, Grain Inspection
   and Warehousing
   Missouri Dept. of Agriculture
   P.O. Box 630
   Jefferson City, MO 65102
   (314/751-5515)

7. GERALD KRUEGER
   Operations Manager
   Louis Dreyfus Corporation
   8005 W. 110th Street
   Overland Park, KS 66210
   (913/345-2111)

8. DEAN M. WALLACE
   County Extension Agent
   for Agriculture
   University of Kentucky
   8012 Vinecrest Avenue
   Louisville, KY 40222
   (502/425-4482)

9. ROBERT G. WALLENTINE
   General Manager
   New Cooperative, Inc.
   2626 1st Avenue South
   Ft. Dodge, IA 50501
   (515/955-2040)

10. CECIL A. WATSON
    Owner/Operator, Grain Farm
    Box 399
    Cavalier, ND 58220
    (701/265-8065)

11. W. ANDREW WHISENHUNT
    President
    Arkansas Farm Bureau
    Farm Bureau Center, Box 31
    Little Rock, AR 72203
    (501/224-4400)

12. MACEY W. WHITE
    Manager, Grain Operations
    Southern States Coop., Inc.
    6606 West Broad Street
    Richmond, VA 23260
    (804/281-1400)

Senator CONRAD. But let me follow up a little on that question. If there was a desire to have some supplementation, how would you most like to see it done? That is, if there was a decision to modify the Advisory Committee—and I am not prejudging it, I am not saying that anybody has reached any conclusion—would you want to see the current membership altered, or would you like to see some additional members?

Mr. MILLER. The Secretary of Agriculture reserves the right to appoint members to the Advisory Committee. The very fact that the issue has been raised in this type of a discussion along with the recommendations from the OTA investigation study will, I believe, encourage the Secretary to take that advice under counsel when he makes his appointments.

The entire committee is up for reappointment this fall and——

Senator CONRAD. When does that occur? Is that a fiscal year appointment?

Mr. MILLER. The appointments are for a 2-year appointment, and a member could serve up to three appointments. Approximately one-third of the committee would not be eligible to serve another term this fall.

Senator CONRAD. So this may be a good time to make a change, if there was a desire to see some change in the mix.

Mr. MILLER. That is correct.

Senator CONRAD. All right. Cooper, do you want to comment on this issue?

Mr. EVANS. Well, I would just raise one point. The two words, foreign buyer, and foreign end-user are not interchangeable, and I think that——

Senator CONRAD. Could you just draw that distinction for us so that it is clear?

Mr. EVANS. Well, let me give you an example from the Japanese grain industry where you have the huge co-ops, and ZEN-NOH is their trade buyer and importer. All right? Many of the Japanese delegations of agricultural people who come to the United States have producers of poultry, hogs, et cetera, among them. They are the end-users.

ZEN-NOH is the buyer. Those people are just as unhappy with their overall purchasing agency, ZEN-NOH as some of us who are producers in this country are with our grain trade on this side.

And it is the ultimate user that I think is very, very important, and that it is those concerns that we need to have represented on the committee, and I just wanted to make the distinction between buyer and end-user.

Senator CONRAD. I am glad you did that. Larry Neumann diagramed this for me yesterday in my office, showing that difference. I just wanted to make sure it is clear in the record, because that is an important matter. We have people out there in the chain who can play games, too, and leave us holding the bag in terms of the perception of the kind of quality we are providing.

Another thing I wanted to ask Kirk is: How do you view changing grain standards to include dockage in the definition of foreign materials as a grading factor?

Specifically, in the case of wheat, how do you view reporting the ratio of broken kernels to other foreign material?

Mr. MILLER. That is a very specific question, and it has been talked about for some time among traditional wheat producer groups as to the relative merits of combining the term dockage and foreign material into some type of a new descriptive term of unmillable materials, and make that a weight-deductible factor like dockage.

I certainly think that it is an issue that needs to be discussed. As we go through our regular review of all the standards we will make a determination as to the economic rationale for why those factors are a part of the standards, and if in fact there is a better way to represent those factors, or the economic value.

This may result in consolidating or eliminating some of the factors.

Senator CONRAD. You heard the testimony of Dr. Phillips on what he sees, based on the analysis they have done so far, as the number one area of focus in terms of improving what we do in grain quality. He focused on farm policy.

I would be glad to give you an opportunity to respond to that, in terms of your view.

Mr. MILLER. Dr. Phillips has the benefit of having a morass of data, and a thorough investigation of the subject. I just, last night, had a chance to read his comments for the first time. Based on the data, and the interpretation of the data that they provided, I can certainly empathize with and understand why he would have that opinion about the major problem.

I guess at this point I do not have any reason to believe that his judgment is not very sound on that subject.

Senator CONRAD. Let me ask this as a followup. One of the things we have heard about here—Cooper, I think talked about it—is end-use value-test studies. I would like to know where are we in terms of developing improvements in our ability to make these judgments, and inform buyers on those counts?

Mr. MILLER. Well, we are very pleased that you asked about that because we are excited about the prospects for being able to offer a number of these tests in the very near future.

We are currently field testing our procedures for analyzing soybean oil and protein using near-infrared reflectance devices. We expect that by this fall we will be in a position to determine whether this will be a part of the official factors provided in the official inspection system for the 1989 crop.

It looks very positive and favorable. We certainly look forward to providing that additional information, beginning with the 1989 crop.

As we look at some of the other objective testing methodologies, the wheat classification issue is certainly a thorny problem that we have had to deal with in the last few years. The research work that is being done in that area is showing tremendous promise, that within the next year or so we will have objective testing methodology to be able to classify general types of wheat.

Again, I think it was very appropriate that Mr. Evans made the comment——

Senator CONRAD. Let me just focus on that. That is very important to me.

Mr. MILLER. Yes, it is.

Senator CONRAD. You are talking about a timeframe of a year?

Mr. MILLER. I think in terms of offering this service we are talking at least a year. At this point we have been involved in a research project with the wheat classification working group. We are currently evaluating 15,000 samples that have been gathered from all over the United States, based on the geographic—

Senator CONRAD. 14,000 from North Dakota?

Mr. MILLER. It is based on the production of the wheat in the different States, which determines the number of samples that are being evaluated from each State. In the case of the State of North Dakota, we are evaluating Durum, Hard Red Spring, and also Hard Red Winter wheats.

Senator CONRAD. That really is terribly important to us. As you know, we have got high quality wheats, high quality grains, and this kind of differentiation we think is just critically important to our future.

Mr. MILLER. We certainly appreciate that. As we move ahead to analyze these 15,000 samples, we are using technology that was developed by Dr. Carl Norris at the Agricultural Research Center at Beltsville, which includes the use of a Udy-type grinder and measures the sound that is involved in grinding the sample.

The biggest drawback with this procedure is that it is very time consuming. It takes 15 to 20 minutes to analyze a sample of about 100 kernels. Obviously this is much too slow to be of practical use at a country elevator where farmers' trucks are lined up for some distance. We need a rapid test.

Therefore, the researchers moved to aggressively pursue the use of the near-infrared reflectance device. Originally it was thought that this would not be a workable solution at an export elevator because the near-infrared reflectance device analyzes a bulk sample, and the bulk sample could be comprised of a pure variety that gives an index value, or it could be comprised of a blend of hard and soft wheats, for instance, or Spring and Winter wheats, or some other combination that would yield that same index value.

So it is thought that the near-infrared reflectance device may not be useful in providing this determination.

Since that original work started, there is evidence that using combinations of protein and hardness values or combinations of other objective criteria may provide useful information that can be very helpful in determining the class of wheat.

Also we think that in terms of a single-kernel device—there is work that has been undertaken at Kansas State University using a kernal cutting technology, and also at the USDA grain marketing research lab at Manhattan, Kansas, using a crushing technology that incorporate high-speed loading devices that could make them very practical for adoption in the official inspection system and by country elevators.

But again, these instruments are not even advanced to the state where they are a prototype device. It will take at least a year to advance them to that level.

But again, I want to leave a message here that we are working on it as aggressively as possible. We have involved producers' interest in it. We have involved the trade, and——

Senator CONRAD. We appreciate that very much. I think that is a significant step forward, a very important one, and we appreciate the effort that has been made.

Looking at our time, we are running somewhat late. I noticed that Senator Exon is here, and one of the witnesses on the next panel is someone from his State, and so I think in the interest of time and in the interest of accommodating a colleague who has just joined us, one who I respect greatly, we will end this panel discussion. I thank all of you very much for participating. I think this has been terrific. With respect to you, Kirk, I have got some followup questions I would like to submit to you and get some answers, in writing, for the record.[1]

Again, I very much appreciate your taking the time to be here today and participating with us.

Mr. MILLER. Thank you very much. We will be happy to respond for the record.

Senator CONRAD. Thank you very much.

The next panel will be comprised of Erv Friehe, a member and grain quality representative of the Nebraska Wheat Board; Cecil Watson, the chairman of the North Dakota Wheat Commission; and Chris Teigum, chairman of the Grain Quality Committee, member of the Board of Directors, and member of the executive committee, American Soybean Association.

Welcome. We also want to welcome Senator Jim Exon of Nebraska, who will introduce his friend and associate from Nebraska. Welcome, Jim.

STATEMENT OF HON. J. JAMES EXON, A U.S. SENATOR FROM NEBRASKA

Senator EXON. Mr. Chairman, thank you very much, and I appreciate you working us in on your very busy schedule this morning. I am proud to appear here with friends of mine from the wheat growing industry and friends of mine from the soybean industry, and they work very hard in a whole series of areas, including marketing loans for wheat, which we are moving ahead on quite aggressively now.

And if the President sees fit to sign the trade bill, we are going to have a significant forward step in that direction.

Before I begin my brief introduction, and shortly thereafter, Mr. Chairman, I will have to be excused since we have a press conference scheduled in about 10 minutes on the ethanol proposition, and using ethanol fuel in automobiles, over in front of the Capitol. I know that you would be there, were you not tied up chairing this very important hearing.

I just want to thank you, Mr. Chairman, for the key role that you have played in being a leader in the agriculture sector since you became a Member of the U.S. Senate.

Those of us who have been around here for a while have looked at you, we have watched you, we have been extremely pleased at what we have seen, and I want to congratulate you for the key role you play for the agricultural sector of our economy, and especially

[1] See pages 80 to 88 for questions and responses.

your State of North Dakota, and your neighboring States, including South Dakota and Nebraska.

Mr. Chairman, it is indeed a pleasure to come before you to introduce a very dear and very old friend of mine who is a farmer, a dirt farmer, who has contributed so much to agriculture in the United States and in Nebraska, and his name is Erv Friehe.

By way of background, just let me enumerate a few of his outstanding credentials, and why I know that his testimony will be well received by you and the subcommittee.

First, and foremost, he is a wheat producer near McCook, Nebraska. He has been a member of the Nebraska's Wheat Growers Association I guess forever. He has completed numerous terms as chairman of the Nebraska Wheat Board. He has been chairman of the Western Wheat Associates. He has held numerous leadership posts with U.S. Wheat Associates.

Currently, he is the grain quality representative with the Nebraska Wheat Board, and that is the role that he appears in here today. Simply put, Erv Friehe is Mr. Wheat, and I am proud to remind you that he is from Nebraska. Erv is going to make a few suggestions to you today. Erv and I have discussed those suggestions and I support each and every one of them as constructive and positive, and forward-looking, as I have always found Erv Friehe and his organizations.

In fact I intend to introduce legislation along the same lines after the Senate returns from the upcoming recess. Clearly, the reauthorization bill before you would be the most efficient mechanism for enacting these provisions, and I stand ready to work with you and the members of the committee toward that end.

Mr. Chairman, I am very pleased to present to you my friend, and great fellow Nebraskan, Erv Friehe.

Senator CONRAD. Thank you very much, Jim. I appreciate very much your taking the time to be here with us today. I just have to tell the rest of you that everywhere I go with Jim Exon, he indicates that he is really out recruiting for the Nebraska football team, and I just wanted to tell you that looking around this crowd, Jim, I think you are going to come up short. I do not think we have got any prime prospects.

Senator EXON. I do not see any. If there are, if they would please stand, we will be glad to take a look at you.

Senator CONRAD. Well, there is no one who is a stronger, more consistent voice for agriculture than Jim Exon, and I tell you, we have appreciated him very much. We call him the Honorary Member of the Agriculture Committee, because outside of the members of the Agriculture Committee, who obviously are deeply involved, there is no other Senator as committed or as deeply involved as Jim Exon. It has been great to have an ally out on the floor, repeatedly, and especially in the Budget Committee because it is a little lonely there.

Jim and I serve on the Budget Committee together and we have waged some tough battles behind the scenes trying to make sure that agriculture is treated fairly. It is awfully good to have an ally that is as tough, and as willing to do battle, as Jim Exon. So I want to thank you publicly, Jim, for what you have done.

Erv, welcome, it is good to have you here. If you will proceed with your testimony and attempt to summarize it, and we will release Jim. I know Senator Exon has another obligation in just a few minutes. So, any time, feel free to leave, Jim. Proceed, Erv.

STATEMENT OF ERVAIN J. FRIEHE, MEMBER, NEBRASKA WHEAT BOARD AND THE BOARD'S GRAIN QUALITY REPRESENTATIVE, McCOOK, NE

Mr. FRIEHE. Good morning, Mr. Chairman. I am Erv Friehe, a member of the Nebraska Wheat Board, serving as its grain quality representative.

My complete prepared testimony has been filed with the subcommittee and so I will summarize.

The Nebraska Wheat Board is the agency of the State of Nebraska Government responsible for directing and promoting the production, marketing, and utilization of wheat. Nebraska is a major wheat State in production of Hard Red Winter wheat, the primary wheat export class.

About 50 percent of our wheat production is dependent on foreign markets. Thus Nebraska farmers, represented by the Nebraska Wheat Board, are very concerned about the quality and cleanliness of U.S. wheat and grain shipments.

For the past several years, the Nebraska Wheat Board has been an outspoken advocate in the grain industry for cleaning wheat before it is sold, either domestically, or into export. We have worked hard to include tough restrictions on grain handling and blending of nongrain material during debate on the Grain Quality Improvement Act of 1986.

Partly as a result of our efforts, Congress enacted the current prohibition against adding dockage as foreign material, or recirculated dust back into grain. Congress also expanded its declaration of policy to give the U.S. grain standards and the Federal Grain Inspection Service a more pro-active mandate on grain quality issues.

Since enactment of the Grain Quality Improvement Act there have been numerous industry meetings on grain quality issues, but little evidence that we are moving toward the kind of improvements Congress envisioned just 18 months ago.

The renewed growth of U.S. grain exports in the past 2 years has generated a degree of complacency in the industry and created a surplus cash reserve of $5 million at FGIS.

At the same time, needed wheat classification research and survey work are going unfunded. The lack of an aggressive commitment to improve wheat quality is reflected in the FGIS annual report to Congress for fiscal year 1987.

First, the FGIS mission statement remains unchanged, covering inspection and weighing responsibilities, but neglecting the directive on quality improvement Congress included in the Grain Quality Improvement Act.

Second, the report's transmittal letter from FGIS Administrator Miller cites recommendations by FGIS's Advisory Committee, that the prohibitions on adding dockage, foreign material, and dust into grain be repealed. Moreover, the minutes of the committee meeting

last April, at which these recommendations were made, show a vote of 11 to 0 with 2 abstentions.

Considering that Congress had mandated these prohibitions only 6 months earlier, the representativeness of the committee of the grain industry must be questioned. The Nebraska Wheat Board will continue to urge a stronger and more proactive grain quality program on the part of FGIS and other industry participants.

This should include mandating clean grain from farm to export elevator, and supplementing the current grade determinants, which encourage blending with appropriate end-use properties.

At this time we would recommend four specific changes to the reauthorization bill proposed by FGIS.

First, the mission statement of FGIS should be broadened to include the quality improvement objectives contained in the statement of congressional policy, and the Grain Quality Improvement Act.

Second, the FGIS Advisory Committee should be reconstituted to include not less than four actual commodity producers.

Third, $500,000 of the cash surplus currently held by FGIS should be required to be spent to fund the uncompleted wheat varietal survey, and the proposed national wheat classification test to be undertaken by FGIS and ARS.

Fourth, the U.S. Grain Standards Act should be amended to redefine foreign material to include all nonwheat material including dockage. We believe these steps would be constructive in encouraging a more involved and proactive role for FGIS and its Advisory Committee on grain quality issues.

They would represent a mid-course connection with the Congress to ensure that the direction, and the intent of the Grain Quality Improvement Act will be pursued. Thank you, Mr. Chairman.

[The prepared statement of Mr. Friehe and attachments follow:]

TESTIMONY

SUBMITTED BY

MR. ERVAIN J. FRIEHE

GRAIN QUALITY REPRESENTATIVE

NEBRASKA WHEAT BOARD

TO

THE SUBCOMMITTEE ON AGRICULTURAL RESEARCH

AND GENERAL LEGISLATION

THE COMMITTEE ON AGRICULTURE

THE UNITED STATES SENATE

ROOM 332, RUSSELL SENATE OFFICE BUILDING

APRIL 29, 1988

STATEMENT OF ERVAIN J. FRIEHE, GRAIN QUALITY
REPRESENTATIVE, NEBRASKA WHEAT BOARD,
STATE OF NEBRASKA

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE, MY NAME IS ERV FRIEHE FROM MCCOOK, NEBRASKA. FRIEHE FARMS, INC. PRODUCES WHEAT, FEEDGRAINS AND SOYBEANS. I AM A MEMBER OF THE NEBRASKA WHEAT BOARD AND THE BOARD'S GRAIN QUALITY REPRESENTATIVE.

THANK YOU FOR THIS OPPORTUNITY TO TESTIFY BEFORE THIS IMPORTANT HEARING ON THE REAUTHORIZATION OF THE FEDERAL GRAIN INSPECTION SERVICE. I ASK THAT THIS TESTIMONY AND THE ATTACHMENTS BE MADE A PART OF THE OFFICIAL HEARING RECORD.

FIRST, I WANT TO COMMEND THE COMMITTEE FOR PROVIDING A FORUM FOR PUBLIC INPUT INTO THE IMPORTANT MATTER OF UNITED STATES GRAIN QUALITY AND THE ROLE THAT THE FEDERAL GRAIN INSPECTION SERVICE CAN PLAY TOWARD IMPROVING OUR COMPETITIVENESS IN THE GLOBAL TRADE ARENA.

THE NEBRASKA WHEAT BOARD IS CONVINCED THAT FGIS CAN BECOME AN EVEN MORE POSITIVE FORCE IN OUR GRAIN MARKETING SYSTEM WITH AN EXPANDED MISSION STATEMENT. WE PROPOSE A MORE PROACTIVE ROLE FOR FGIS, A ROLE WHICH GOES A STEP BEYOND MONITORING, REGULATING AND REPORTING. THE NEW MISSION FOR FGIS INCLUDES THE MANDATE TO <u>REVISE AND MAKE U.S. GRAIN STANDARDS MORE COMPETITIVE THAN THE GRAIN STANDARDS AND GRADE REQUIREMENTS OF OUR MAJOR COMPETING EXPORTERS</u>. THIS MEANS THAT FGIS WILL BE SPECIFICALLY RESPONSIBLE FOR IMPLEMENTING A NEW SET OF GRADE REQUIREMENTS AND STANDARDS FOR WHEAT THAT ALLOWS LESSER AMOUNTS OF <u>TOTAL DEFECTS</u> AND <u>WHEAT OF OTHER CLASSES</u> IN A GIVEN GRADE OF U.S. WHEAT THAN WHAT IS CURRENTLY ALLOWED. THE NEBRASKA WHEAT BOARD URGES THE COMMITTEE TO INCLUDE SUCH AN AMENDMENT AS PART OF THE FGIS REAUTHORIZATION BILL. SUCH AN AMENDMENT WILL BE A MAJOR STEP TOWARD "CLEANING-UP" U.S. WHEAT EXPORTS AND MAKING OUR PRODUCT MORE COMPETITIVE INTERNATIONALLY.

ALONG WITH TIGHTER GRADE REQUIREMENTS WE URGE ADOPTION OF AN AMENDMENT THAT SPECIFICALLY DESIGNATES WHAT IS NOW <u>DOCKAGE</u> AS <u>FOREIGN MATERIAL</u>. THIS APPROACH WILL INCLUDE MATERIAL THAT IS CURRENTLY TERMED "DOCKAGE" INTO THE DEFINITION OF FOREIGN MATERIAL THEREBY PROVIDING AN ALLOWABLE TOLERANCE LEVEL FOR DOCKAGE ACCORDING TO THE NUMERICAL GRADE. THE TERM "DOCKAGE" WILL NO LONGER BE USED WHICH WILL ALSO ELIMINATE THE PROBLEM OF CONFUSION THAT THE TERM HAS CAUSED WITH FOREIGN BUYERS. CONSIDERING THAT DOCKAGE HAS BEEN THE SOURCE OF MANY COMPLAINTS FROM FOREIGN BUYERS FOR MANY YEARS, A METHOD OF REDEFINITION AND TIGHTER CONTROL WILL ACHIEVE VERY REAL PROGRESS. I WOULD LIKE TO MENTION AND I AM PLEASED TO REPORT, THAT THE KANSAS FARM BUREAU SUPPORTS THIS APPROACH FOR DOCKAGE AS WELL. THE FACT THAT KANSAS IS THE LARGEST

WHEAT PRODUCING STATE SHOULD ALSO BE GIVEN CONSIDERABLE WEIGHT ON THIS ISSUE.

IN ORDER TO ASSESS THE LEVEL OF PRODUCER SUPPORT FOR TIGHTER GRAIN STANDARDS AND GRADE REQUIREMENTS FOR WHEAT THE NEBRASKA WHEAT BOARD COMMISSIONED A POLL OF ONE THOUSAND NEBRASKA WHEAT PRODUCERS. THE POLL WAS CONDUCTED BY SRI RESEARCH CENTER, INC. IN JUNE OF 1987. WHEAT PRODUCERS WERE ASKED TO AGREE, DISAGREE OR TAKE A NEUTRAL POSITION ON TWO FUNDAMENTAL ASPECTS RELATIVE TO TIGHTER GRAIN STANDARDS. 82% OF THE PRODUCERS POLLED AGREED WITH THE STATEMENT THAT TIGHTER GRAIN STANDARDS WILL MEAN MORE MONEY FOR PRODUCERS BECAUSE CLEANER U.S. WHEAT EXPORTS WILL INCREASE WORLDWIDE DEMAND AND U.S. COMPETITIVENESS. ONLY 6% DISAGREED WITH THAT STATEMENT AND WHEN THE NEUTRALS ARE EXCLUDED FROM THE RESULTS THE PERCENT OF PRODUCER'S AGREEING INCREASES TO 93%.

87% OF THE PRODUCERS POLLED AGREE THAT THE U.S. NEEDS FEDERAL LEGISLATION THAT WILL TIGHTEN THE U.S. GRADE REQUIREMENTS AND STANDARDS FOR WHEAT SO THAT OUR WHEAT EXPORTS ARE JUST AS CLEAN AS CANADIAN OR AUSTRALIAN WHEAT EXPORTS. ONLY 5% DISAGREED WITH THAT STATEMENT AND WHEN THE PERCENT OF NEUTRAL PRODUCERS ARE REMOVED FROM THE ANALYSIS, THE PERCENTAGE OF PRODUCERS AGREEING RISES TO 95%. THE SRI POLL RESULTS ON THESE POINTS ARE ATTACHED. IF THE SRI POLL WERE DUPLICATED IN THE OTHER MAJOR WHEAT PRODUCING STATES, IT IS OUR BELIEF THAT PRODUCERS OPINIONS WOULD BE CONSISTENT WITH THOSE IN NEBRASKA.

WHEAT PRODUCERS WANT THE UNITED STATES TO PROVIDE THE FOREIGN MARKET WITH CLEANER, HIGHER QUALITY WHEAT THAN ANY OTHER EXPORTING NATION. WE WANT OUR PRODUCT TO BE THE BEST AND THE MOST COMPETITIVE IN THE GLOBAL MARKETPLACE. WE INVEST OUR OWN MONEY AND TEAM UP WITH THE FOREIGN AGRICULTURE SERVICE OF USDA TO PROMOTE EXPORTS. TIGHTER FEDERAL GRAIN STANDARDS AND CLEANER U.S. WHEAT EXPORTS WILL BE AN EXCITING NEW WAY TO CAPITALIZE ON OUR YEARS OF INVESTING IN FOREIGN MARKET DEVELOPMENT. AND A MORE PROACTIVE ROLE FOR THE FEDERAL GRAIN INSPECTION SERVICE WILL BE A MAJOR STEP IN ESTABLISHING A COOPERATIVE, COORDINATED AND STRATEGIC NATIONAL POLICY OF GLOBAL WHEAT EXPORT COMPETITIVENESS. A MORE MARKET-ORIENTED ROLE, THROUGH AN EXPANDED MISSION STATEMENT FOR FGIS, WILL PROVIDE THE PREVIOUSLY ABSENT ELEMENT IN THE UNITED STATES' STRATEGIC PLAN TO INCREASE EXPORTS FOR THE LONG TERM.

WHEAT PRODUCERS ARE THE LARGEST SINGLE SECTOR OF THE UNITED STATES WHEAT PRODUCTION AND MARKETING SYSTEM. THERE ARE APPROXIMATELY 500,000 SUCH INDEPENDENT BUSINESSES ACROSS THE COUNTRY. AS PROFESSIONALS WE RESPECT THE OTHER SECTORS OF THE WHEAT MARKETING AND MERCHANDISING CHAIN AND THEIR INTEREST IN GRAIN QUALITY AS WELL. THE NEBRASKA WHEAT BOARD BELIEVES THAT COUNTRY ELEVATORS, RAILROADS, FLOUR MILLERS AND EXPORTERS ALL HAVE AN INTEREST IN TIGHTER GRAIN STANDARDS AND CLEANER WHEAT ALL THE WAY FROM THE FARM FIELD TO THE DOMESTIC OR FOREIGN FLOUR MILL.

LIKEWISE, THE FEDERAL GOVERNMENT HAS AN INTEREST IN TIGHTER STANDARDS AS AN INCENTIVE FOR CLEANER WHEAT TO BE PLACED UNDER GOVERNMENT STORAGE PROGRAMS. SUCH AN INCENTIVE PLAN WILL REDUCE GOVERNMENT COSTS WHILE MAINTAINING HIGHER QUALITY FOR A LONGER PERIOD IN STORAGE.

TIGHTER GRAIN STANDARDS AND MORE STRINGENT TOLERANCE LEVELS FOR TOTAL DEFECTS AND WHEAT OF OTHER CLASSES BY NUMERICAL GRADE WILL ALSO REDUCE THE AMOUNT OF LESSER QUALITY AND LOWER GRADE WHEAT AVAILABLE TO THE MARKET. SUCH A DEVELOPMENT, COMBINED WITH RESTRICTIONS ON THE TRADE PRACTICE OF BLENDING NUMEROUS QUALITIES AND GRADES OF WHEAT WILL GREATLY ENHANCE U.S. WHEAT QUALITY, IMAGE AND INTERNATIONAL COMPETITIVENESS FOR THE FUTURE. RECENT ARTICLES PUBLISHED IN TOP PRODUCER AND FARM JOURNAL ARE ATTACHED TO THIS TESTIMONY. THE EDITORS OF BOTH PUBLICATIONS HAVE DONE A TREMENDOUS SERVICE TO U.S. WHEAT PRODUCERS AND THE AMERICAN PUBLIC BY PROVIDING A VERY CANDID AND OPEN DISCUSSION OF OUR U.S. EXPORT SYSTEM. THE INFORMATION AND EDUCATION CAN ONLY BE POSITIVE AND CONSTRUCTIVE. THE ARTICLES DISCUSS THE WAY WHEAT IS BLENDED IN THE U.S. EXPORT SYSTEM. THE ARTICLES SIMPLY DESCRIBE THE TRADE PRACTICES THAT ARE CURRENTLY LEGAL AND ACTUALLY ENCOURAGED UNDER THE PRESENT U.S. GRAIN STANDARDS AND AUTHORIZED SHIPLOADING PLAN FOR WHEAT. WE BELIEVE THAT LOWER AND SAMPLE GRADE WHEAT LOTS SHOULD NOT BE BLENDED IN SUCH A MANNER AS DESCRIBED IN THE ARTICLES MENTIONED. THERE ARE MORE APPROPRIATE AND LOGICAL OUTLETS FOR SUCH GRAIN THAN THE FOREIGN MARKET.

AS A MEANS FOR ALL SECTORS OF THE GRAIN INDUSTRY TO WORK TOGETHER WE SUGGEST AN ADVISORY COMMITTEE WITH A SOMEWHAT DIFFERENT STRUCTURE THAN THE COMMITTEE CURRENTLY PROPOSED IN SECTION 20 OF THE FGIS REAUTHORIZATION BILL. AS I MENTIONED EARLIER IN THIS TESTIMONY, WHEAT PRODUCERS REPRESENT BY FAR THE LARGEST NUMBER OF INDEPENDENT BUSINESSES IN THE WHEAT AND GRAIN INDUSTRY. THE ADVISORY COMMITTEE SHOULD LOGICALLY CONSIST OF A MAJORITY OF PRODUCERS. HOWEVER, WE PROPOSE AN AMENDED SECTION 20 THAT ESTABLISHES A TWELVE MEMBER COMMITTEE WITH NO LESS THAN FOUR ACTUAL PRODUCERS. WE ALSO SUGGEST ACADEMIA BE REPRESENTED ON THE COMMITTEE BY NOT LESS THAN TWO MEMBERS. ONE REPRESENTATIVE EACH OF GRAIN MERCHANTS, GRAIN PROCESSORS, GRAIN EXPORTERS, THE COMMODITY CREDIT CORPORATION, THE FOREIGN AGRICULTURE SERVICE AND THE GRAIN INSPECTION AND WEIGHING AGENCIES, WILL COMPLETE THE ADVISORY COMMITTEE. SUCH A COMMITTEE STRUCTURE WILL BE A MORE REALISTIC REPRESENTATION OF THE INDUSTRY AS A WHOLE.

RELATIVE TO THE CURRENT FGIS ADVISORY COMMITTEE AND THEIR RECENT RECOMMENDATION THAT FGIS SHOULD NOT PROHIBIT RECOMBINING OR ADDING DOCKAGE OR FOREIGN MATERIAL TO GRAIN AND SHOULD NOT PROHIBIT ADDING RECIRCULATED DUST TO GRAIN, THE NEBRASKA WHEAT BOARD COMMENDS FGIS FOR NOT ACCEPTING THOSE SPECIFIC

RECOMMENDATIONS. THOSE RECOMMENDATIONS RUN CONTRARY TO THE GRAIN QUALITY IMPROVEMENT ACT OF 1986 AND WE URGE FGIS AND THE CONGRESS TO EXPAND FURTHER ON THE LAW'S SPIRIT AND DIRECTION. THE ADVISORY COMMITTEE WE ENVISION WILL ENHANCE THE POTENTIAL FOR SUCCESSFUL IMPLEMENTATION OF THE GRAIN QUALITY IMPROVEMENT ACT OF 1986 WHICH THIS COMMITTEE WAS SO INSTRUMENTAL IN SHAPING AND PASSING INTO LAW.

ON ANOTHER ASPECT OF QUALITY CONTROL WITHIN THE WHEAT INDUSTRY, WE URGE THAT A PORTION OF THE MILLIONS OF DOLLARS CURRENTLY IN THE FGIS ACCOUNT BE CREDITED TO A FUND WHICH WOULD COVER THE COST OF A NATIONAL WHEAT VARIETAL SURVEY BEING CONDUCTED BY THE AGRICULTURAL RESEARCH SERVICE (ARS). ADDITIONALLY, THE NATIONAL CLASSIFICATION TEST PROPOSED BY THE WHEAT CLASSIFICATION WORKING GROUP TO BE CONDUCTED BY THE ARS AND FGIS SHOULD BE FUNDED WITH THOSE AVAILABLE FGIS MONIES. HARDNESS TESTS SUCH AS THE WORK DONE BY PROFESSOR PAUL MATTERN, HEAD CEREAL CHEMIST, AT THE WHEAT QUALITY LABORATORY OF THE INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES OF THE UNIVERSITY OF NEBRASKA HAS MADE VERY MEANINGFUL PROGRESS BUT A GREAT DEAL MORE RESEARCH IS NEEDED IN THIS AREA AND IT SHOULD BE FUNDED AND PUT ON A FAST TRACK.

IN CLOSING, I URGE YOU TO HELP THE U.S. WHEAT INDUSTRY ACHIEVE EXCELLENCE IN EXPORTS. AS RECENTLY INDICATED IN AN ARTICLE ENTITLED "WHAT AMERICA MAKES BEST" WHICH APPEARED IN THE MARCH 28, 1988 ISSUE OF FORTUNE MAGAZINE, TODAY, QUALITY IS AT THE CRUX OF GLOBAL COMPETITIVENESS. THAT SAME FORTUNE ARTICLE PROVIDED A LIST OF THE 100 PRODUCTS THAT AMERICA MAKES BEST. WHILE U.S. WHEAT DID NOT APPEAR ON THAT LIST, THE NEBRASKA WHEAT BOARD BELIEVES THAT TIGHTER GRAIN STANDARDS AND CLEANER WHEAT CARGOES WILL GIVE UNITED STATES WHEAT THE REPUTATION AND DISTINCTION AS ONE OF THE COMMODITIES THAT THE UNITED STATES EXPORTS BEST. THE FORTUNE ARTICLE WHICH I REFERRED TO IS ATTACHED TO THIS TESTIMONY. THE FOCUS OF THE ARTICLE IS THE PURSUIT OF QUALITY AND THE ARTICLE OFFERS A GREAT DEAL OF INSIGHT INTO THE APPROACH AND PHILOSOPHY THAT LEADING U.S. MANUFACTURERS APPLY IN THEIR PURSUIT OF QUALITY. THE CLOSING TWO SENTENCES OF THE ARTICLE SUM IT UP BEST IN STATING THAT "FOR THE CUSTOMER, QUALITY IS IRRESISTIBLE. FOR INDUSTRY, IT IS ESSENTIAL." THE WHEAT INDUSTRY'S CHALLENGE AND OPPORTUNITY IS TO CATCH UP WITH OTHER U.S. INDUSTRY SO WE CAN BE A MAJOR PART OF THE OVERALL NATIONAL EFFORT TO COMPETE IN THE GLOBAL TRADE ARENA.

THANK YOU FOR THIS OPPORTUNITY.

Attached material follows:

THE TRUTH ABOUT BLENDING

EXPORTERS SAY IT'S JUST GOOD BUSINESS; OTHERS CALL IT A LICENSE TO STEAL

By Dale McDonald

Of all the issues clouding America's export grain grading standards, none galvanizes industry more than blending. At congressional hearings, industry representatives pack the room. They flood the Federal Grain Inspection Service with letters. They invite the media to tour export elevators and see state-of-the-art facilities. They spend big money lobbying your representatives in Washington.

In a policy statement for Cargill, public affairs representative Lori Johnson sums up industry's position on blending:

"Few areas," she writes, "have been the subject of as much rhetorical excess as the issue of blending. Some critics have tried to portray blending as a scheme that allows grain handlers and exporters to profit at the expense of U.S. producers and customers.

"Blending grain with varying quality characteristics serves to lower the overall quality of U.S. exports, they say, and contributes to a perception of unreliability among overseas buyers. Grain handlers, exporters and others familiar with the U.S. grain marketing system dispute those claims with equal vigor."

PHOTO BY TIM KENNEDY

Veil of secrecy. It is difficult for outsiders to investigate this defense, because industry is allowed to operate behind a veil of secrecy. The Federal Grain Inspection Service (FGIS) will not release information about foreign complaints. Documents requested through the Freedom of Information Act are routinely denied or are heavily censored. Shiplogs and load records are considered classified documents and closed in file drawers forever.

However, TOP PRODUCER was able to obtain actual loading records of two export shipments of wheat—shipments that were called "good quality, better than average"—by an industry insider. It is clear why proponents of export blending like the system.

First, let's look at a load of wheat shipped to Morocco by Continental Grain on board a ship called Zemia Lubelska. Of the 725,575 bu. certified by the FGIS as #2 or better, 21% of the wheat was actually *#3 or worse.*

This ship contained 104,800 bu. of #3 grade wheat, 26,275 bu. of #4, 5,250 bu. of #5, and 14,425 bu. of sample grade wheat (the worst grade there is). This grain was blended with 420,425 bu. of #2 and 154,400 bu. of #1. Every bushel was sold at the full contract price for #2 or better wheat.

A shipment of wheat loaded by Cargill and sent to Finland aboard a ship called Arkadia was the same story—almost.

Cargill had 817,092 bu. ready to be blended for Finland. The total included 44,637 bu. of sample grade wheat, 11,250 bu. of #5, 29,560 bu. of #4, 46,115 bu. of #3, 671,780 bu. of #2, and 13,750 bu. of #1.

In this case, however, a review of the ship's log reveals that the intended shipment contained so much substandard grain that the elevator had trouble blending it to specifications. Cargill finally brought in a train-full of #1 wheat to get the shipment onboard. Luckily for Finland, over half of the off-grade grain stayed on shore.

Seal of approval. This is how our grain grading system works. These shipments are legal, and they carry a United States Government seal of approval. If the buyer complains, he is told by the Federal Grain Inspection Service that the shipment made grade and his complaint is not valid.

This policy may raise some questions, but it also answers some:

- Importers of American grain do routinely receive off-grade grain for which they pay full price.
- Grain exporters do buy heavily discounted grain from farmers and sell it at full price.
- America's export grain grading standards do serve to lower the overall quality of U.S. exports. ◀

EXPORT BLENDING: CASE HISTORIES

Shipper: Continental Grain • Importer: Morocco
Ship: Zemia Lubelska

The Zemia Lubelska sailed with 725,575 bu. of certified #2 grade wheat in its holds. But only 79% of its cargo actually was #2 or better—150,750 bu. of #3, #4, #5 and sample-grade grain had been blended in. The chart below lists examples of actual graded lots contained in the blend. All of the wheat was sold at #2 price.

Grade	Test weight lb.	Dockage %	Moisture %	Damage %	Foreign material %	Shrunken/ broken %	Total defects %	Contrasting classes %	Wheat of other classes %	DHV %	Protein %
#1	59.5	0.5	13.4	1.9	0.3	0.8	3.0	0	0	35	11.7
#2	59.0	0.8	13.3	2.3	0.3	1.4	4.0	0	0	44	11.9
#3	59.3	1.9	12.9	5.8	0.2	1.3	7.1	0	0	34	12.4
#4	59.0	0.5	14.6	10.0	0.4	1.0	11.4	0	0	38	11.8
#5	59.6	0.5	12.6	14.0	0.2	1.0	15.8	0	0	43	12.4
Sample	58.0	0.9	13.1	14.5	0.3	1.9	16.7 musty	0	0	40	13.4

Shipper: Cargill • Importer: Finland
Ship: Arkadia

The word "rejected" appears on the Federal Grain Inspection Service's Weight Loading Log 31 times. To make grade, Cargill brought in a trainload of #1 wheat to add to the blend. Even so, 10 of the sublots listed on the ship's inspection log, representing 306,388 bu., do not meet minimum [illegible] cations for the shipment. The U.S. Govern[illegible]ment-approved loading plant [illegible] The chart below lists examples [illegible] graded lots contained in the blend. All of the wheat was sold at #2 price.

Grade	Test weight lb.	Dockage %	Moisture %	Damage %	Foreign material %	Shrunken/ broken %	Total defects %	Contrasting classes %	Wheat of other classes %	DHV %	Protein %
#1	59.5	0.5	12.9	1.6	0.2	1.2	3.0	0	0	36	12.9
#2	59.6	0.8	13.2	2.4	0.3	1.8	4.5	0.3	0.5	52	12.1
#3	58.4	1.3	13.5	3.0	1.4	1.5	5.9	0.4	0.7	66	12.9
#4	59.3	0.8	12.6	5.8	0.3	1.2	7.8	5.0	5.0	61	12.8
#5	59.5	0.9	13.3	11.0	0.3	1.4	11.7	0	0	58	12.5
Sample	60.0	0.3	13.0	29.0	0.3	1.9	31.2	0	0	70	12.5

United States Grain Standard
No. 2 Wheat

Grade	Test weight lb.	Dockage %	Moisture %	Damage %	Foreign material %	Shrunken/ broken %	Total defects %	Contrasting classes %	Wheat of other classes %	DHV %	Protein %
#2	57*	contract specifies, usually 1% or less	contract specifies	4.0	1.0	5.0	5.0	2.0	5.0	contract specifies	contract specifies

*Test weight is for hard red spring or white club. All other classes require 58.0 test weight.

By Dale McDonald

CLEAN-GRAIN CRUSADER

NICOLAAS KONIJDENDIJK WANTS TO BEAT THE MULTINATIONALS ON THEIR HOME TURF

Despite a cold, dreary day in Houston, Nicolaas Konijdendijk is glowing. Fifty railcars are unloading clean wheat bound for Finland, and Nicolaas, a Dutch trader, is responsible for the sale.

This is not just any old grain sale. For nearly a year Nicolaas tried to find an American supplier willing to sell clean wheat. And the memory of a year's frustration removes his bright smile.

"For months I tried to get offers from Union Equity and Cargill," he says. "I never got an answer back. Never. Then I tried smaller elevators, but I have learned in trying to do this, that many of your interior elevators are owned by Continental, Union Equity and Cargill. In the beginning the local elevator says 'Yes, we can do that.' But always a 'No' comes later."

If it hadn't been for Dan McGuire and members of the Nebraska Wheat Board, this landmark clean-wheat deal may never have been struck. But through them and Randall Ritz, president of Lyman Elevator Co. in Lyman, Neb., Nicolaas finally found some sellers willing to provide clean wheat.

"But I must tell you that the Finns did not have to do this," Nicolaas cautions. "They waited and waited; they stuck with me on this until they got it. But this cannot continue. They keep asking me why the grain traders, the big boys, are so uncooperative."

Big bucks. Nicolaas says "the big boys" won't deal in clean grain because they make big bucks blending heavily discounted low-grade grain into #1 and #2. In fact, the clean wheat bound for Finland is only about 10% of the ship's cargo, and much of the rest—loaded by Cargill and sold as #2—is a blend of #1, #2, #3, #4, #5 and sample-grade wheat.

This is no surprise to Nicolaas, who is well versed in international grain trading. For 10 years, beginning in 1974, he lived in Rotterdam, promoting American wheat for U.S. Wheat Associates. It was in Rotterdam that he saw the tide turn against American grain.

The problem was a very basic one. U.S. grain standards allow a great deal of blending, and the exporters took full advantage. Meanwhile our competitors, especially Canada and Australia, were selling a better product. Nicolaas spent years writing reports, warning the Americans of the explosive situation, but no one seemed to care.

"I must tell you a terrible story," he says. "Five years ago in Mannheim, Germany, some important millers made an official complaint to your embassy in Bonn. They sent samples to the Federal Grain Inspection Service [FGIS] in June. Everything was official.

"I told them they would hear an answer in July. There was no answer. Not in July, not in October, not in November. They were so angry it was unbelievable. Later, they got a letter from the FGIS that said 'Sorry, your complaint is wrong.' Those mills quit buying that day. Nothing. They buy Canadian, now."

Frustrated. Nicolaas got frustrated with his inability to make something happen. He was tired of facing angry buyers, tired of standing on the front lines with his hands tied. So he took his show to Manhattan, Kan.

Kansas State University's International Grains Program seemed like the perfect place for Nicolaas. Grain buyers from around the world gathered in the university's classrooms to learn about buying and milling American wheat. And Nicolaas was the students' favorite—he taught them how to buy grain under the standards and not get ripped off. He was good, and they loved him.

But the grain companies didn't, especially after he assembled a group of European buyers for a symposium on wheat quality. Nicolaas laughs about this now, but it was the beginning of the end. "Everyone was there," he remembers, "traders, exporters, government officials. One of the importers from Germany explained things this way: 'I would rather play roulette in Monte Carlo than import your wheat. In Monte Carlo I know that I will lose, but sometimes win. With U.S. wheat, I always lose. If I continue to buy this I will be kicked out of my company.'

"The farmers and importers at the seminar had a good feeling that something would be done, but the exporters really made a lot of flack. Joe Halow, who was then the executive director of the North American Export Grain Association, nearly went out of his head defending the exporters, defending blending. He was really something to see."

The meeting made the papers, and now Nicolaas's views on grain quality and the grain trade were out in the open. "Soon after the meeting," he says, "I got word from the university that I was not allowed to talk anymore with the press. So, I stuck with my job and tried to show buyers how to write a contract and better know what they will get, but that also was not appreciated. Things got worse and worse, very political, until I had to leave. I went back to Holland."

Personal sacrifice. The move was made with great personal sacrifice. Before leaving Holland, Nicolaas had leased his home for 10 years and could

PHOTO PAUL E HOWELL

> ***"This is a victory. The Finns want an entire ship of clean American wheat. And it is not only Finland—it is other countries in Europe, it is in the Middle East, the Far East. It could be everywhere."***
>
> Nicolaas Konijdendijk at the port of Houston, where clean wheat is being loaded for export to Finland

not get it back. He had to leave his 16-year-old daughter with friends in Kansas so she could finish high school and not fall behind. He was on his own.

Soon after returning, he formed a trading company and began trying to find an American supplier that would sell clean grain. Nicolaas realizes that he appears to be a little crazy because he won't give up, but he is quite driven by principle.

"For 14 years I have tried to get clean wheat shipped from America," he says. "Why not just give up? Because I have traveled all over your country, and I've seen the good grain there. I also see farmers not living well. They pay good money for wheat boards and promotion groups that travel all over the world, but they can't do anything for the farmer.

"The big trading companies own your system, and it just itches me. I can't stand this. I do not mind that the traders make money—selling is expensive—but not to excess.

"I want to arrange clean-wheat sales. I want to do these deals, but I don't want to play politics anymore."

Never give up. Hopefully, the next deal will be easier. Even as you read this, Nicolaas is trying to arrange an entire shipload of clean wheat for Finland.

"All I need is a supplier," he emphasizes. "Union Equity could be the world's largest exporter of clean, high-quality milling wheat. All I need is a bid. And I am glad Cargill is handling this first shipment to Finland because they will know it can be done.

"Now, everyone will know this can be done. This is a victory. The Finns want an entire ship of clean American wheat. And it is not only Finland—it is other countries in Europe, it is in the Middle East, the Far East. It could be everywhere."

Nicolaas believes that we can get—and keep—that business if we tighten our grain standards so the shippers can't blend so heavily. He also thinks the grain-standards issue goes beyond simple profits. It's a matter of ethics.

"How can you have such a policy?" he asks. "The U.S. maintains the strictest standards in the world on all food except grains—meat, chicken, all of it. If it is of poor quality it is rejected. I have seen it.

"But your traders can do almost anything with food grains, and this is your national policy. Who makes these rules? Not the farmers, it's the trade, and this is killing you." ◀

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By Dale McDonald

FINLAND BUYS CLEAN WHEAT

THE NEBRASKA WHEAT BOARD SETS A PRECEDENT BY DEALING DIRECTLY WITH FINNS

For Dan McGuire, director of the Nebraska Wheat Board, Jan. 13 was like waking up from a sweet dream. On that day he held a press conference at the state capitol and announced that Finland had agreed to purchase 4,500 tons of clean Nebraska wheat at a 5¢-per-bushel premium over standard #2 grade wheat.

Sweet dream, indeed, but McGuire, along with a few other never-say-die Nebraskans, already had endured what seemed to be a never-ending nightmare. Nearly three years ago McGuire began campaigning to tighten America's grain grading standards. He gave speeches, testified at Senate and congressional hearings, wrote letters to influential politicians and very nearly begged the Federal Grain Inspection Service to improve the quality of our export grain.

"I'm sure we were viewed by many other people as having hammered on this thing long enough," McGuire says. "They were saying, 'Can't you just leave this alone instead of beating it to death?' But no, we were not going to let go of it.

"Often the patience of the opposition wears you down. But we decided we were as tough as anybody, plus, we were *right*. We thought there was an elevator that would provide clean grain, and we thought there was a country that would put its faith in us. We found them—Randall Ritz, president of Lyman Elevator Co. in Lyman, Neb., and Finland.

"World buyers can thank Mr. Seppo Koivula, head of the Foreign Trade Department of the Finnish State Granary, and Mr. Nicolaas Konijnendijk [pronounced Kundenundike], the department's quality control representative, for taking this bold step to buy identity-preserved, clean wheat."

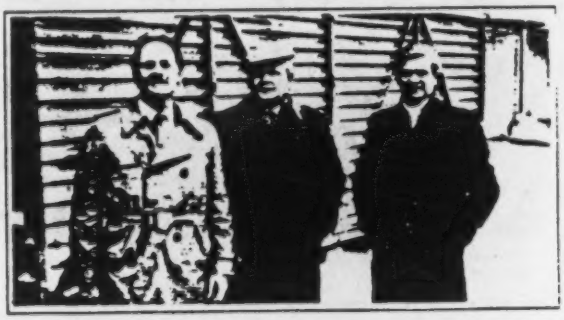
The initial sale totals 165,000 bu. and will cost the Finns about $600,000, but even this small sale wasn't easy. McGuire traveled to Helsinki last November at Konijnendijk's invitation, where he met with representatives of the Finnish State Granary. He watched the Finns compare his wheat samples to samples from Canada, Australia, Saudi Arabia and the EC. He met with ocean freight companies, more Finnish officials, and then had to get Finland approved for Export Enhancement.

Hectic operation. "This was such a hectic operation," McGuire remembers. "The time lag between Helsinki, Washington and Lincoln, Neb. is formidable. While we were waiting for the Finn's EEP bid to clear, wheat prices jumped up. We were dealing with governments, traders, exporters . . . and then at the last minute, while we were waiting to hear the verdict, a snowstorm closed Washington down . . . unbelievable, but we did it."

Now, McGuire wants to sell a whole shipload. And that might fall to the newly formed Interstate Agricultural Grain Marketing Commission. The Commission includes representatives from Nebraska, Wyoming, Minnesota, Iowa and New Mexico, and is headed by Nebraska State Sen. Loran Schmit. Schmit thinks big. He says, "Imagine the resources of the commission's five states with dozens of country elevators working with us to originate large volumes of clean grain to targeted foreign buyers. The potential is unlimited."

McGuire couldn't agree more, but he knows it will be tough. He says, "The commission could be the catalyst that gets enough elevators together to fill big orders. But this thing has been fought. If a buyer wants to specify clean wheat, and the system is able to deliver it, the only reason for opposition is that it removes the flexibility of a merchandiser to blend or move the grain around.

"Once the word gets out about this deal with Finland the action will spread. The question is, will the U.S. system deliver?" ◀



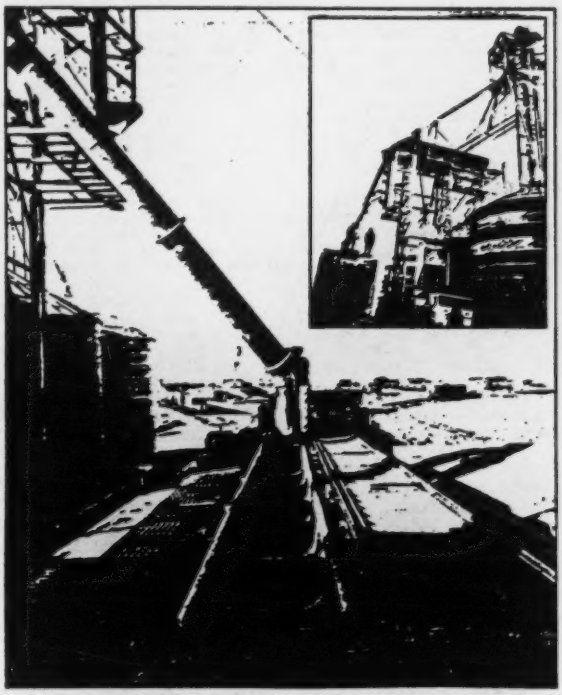
LAST NOVEMBER, DAN MCGUIRE (left) of the Nebraska Wheat Board traveled to Finland and negotiated the wheat deal. Nicolaas Konijnendijk (right) arranged the meeting with Seppo Koivula of the Finnish State Granary.

friday a.m.
Omaha Edition • Vol. 11 • No. 42 • February 26, 1988

'Clean' Wheat Yields Tasty Finnish Licorice

Fifty hopper cars of clean Nebraska hard red winter wheat left Lyman, Nebraska, recently for Houston and then to Helsinki, Finland.

Foreign buyers have complained that American wheat contains debris, mixed-quality wheat and foreign materials that lower the overall quality and makes the grain from other countries more desirable. Clean wheat has very little debris and is "identity preserved." That is, it is kept separate from other wheat during the move.



Clean Nebraska wheat is loaded into hopper cars by employees of Lyman Elevator Company of Lyman, Nebraska.

The 50-car move totaled 165,000 bushels of wheat that will be used to make licorice in Finland, says Mike Haeg, UP product manager-export wheat.

"The move was no different than any other grain commodity move on the UP with the exception of the grain being identity preserved," Haeg said.

The wheat was carefully cleaned by the Lyman Elevator Company before being loaded into hopper cars.

The Lyman Elevator Company is well-equipped to thoroughly clean the grain, says Dan McGuire, agency director of the Nebraska Wheat Board. "A series of screens and scalpers filter the debris and fans suck chaff from the wheat," he said.

"The shipment could open the door to more sales of clean wheat from the United States to Finland and other foreign buyers," said Nicolas Konijnendijk, quality control representative for Finland's Foreign Trade Department.

"When the flour mills in Finland have a chance to compare this clean, high-quality Nebraska wheat to the typical wheat shipments they receive, they may be back to buy more from Nebraska," said Konijnendijk.

Union Pacific Corporation

Stock Report

FEBRUARY

	Volume	High	Low	Close
15	HOLIDAY			
16	345,400	58⅛	56⅛	58⅛
17	457,600	58⅜	57	57⅛
18	233,900	57½	56⅞	57¼
19	287,200	57¾	56½	57¾

Wheat Makes Finnish Licorice

Konijnendijk witnessed the loading in Lyman along with UP's National Account Manager Don Birkes.

"The full trainload of wheat represents the largest such shipment from the Nebraska's 'clean wheat initiative'," said McGuire.

"If the Finns are satisfied, there could be a possibility of shipping an additional 150 carloads, or 520,000 bushels, of clean wheat this year," said Haeg.

Haeg said UP's performance was outstanding. Grain cars were ready for loading on-time at the elevator, and the wheat arrived at the Houston Public Elevator just before the Finnish boat Arcadia arrived for loading.

"Although the wheat is costing five cents more per bushel," McGuire said, "the focus was on quality, not price." The $600,000 shipment was partially subsidized under the U.S. Department of Agriculture's Export Enhancement Program.

"The shipment cost the same as any other wheat move on the railroad," Haeg said.

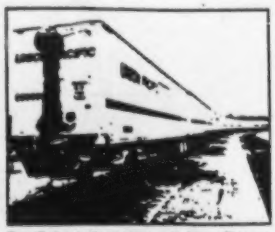
A press conference at Lyman Elevator Company, from left, included National Association of Wheat Growers President Frank Johannsen, Finland's Quality Control Representative Nicolas Konijnendijk, Agency Director of the Nebraska Wheat Board Dan McGuire, Lyman Elevator Company President Randall Ritz and UP's National Account Manager Don Birkes.

Shortlines

BARGE RATES TO INCREASE. Barge coal rates could jump as much as 20 percent in 1988, according to leading barge industry officials quoted in the Journal of Commerce. Coal barge rates are totally unregulated. Members of Consumers United for Rail Equity (C.U.R.E.) are seeking reregulation of rail coal rates, though rates have dropped 5 percent during the last two years. C.U.R.E. is not seeking similar regulatory change to cover escalating barge rates.

GRAIN SHIPPERS PROFIT. Recent ocean shipping rates between Gulf Coast ports and Japan have increased substantially and are now running about $7 per ton higher than shipments from Pacific Northwest ports. Some grain companies are finding they can save money by shipping grain by rail to the Pacific Northwest instead of the Gulf, even though that substantially increases the length of the rail haul.

POTATO GROWERS SAVE. UP is expanding its rail-truck transloading program for Idaho potato shippers with a new service called Bi-Modal Express. It offers rail economies for truckload quantities of potatoes, onions and other food products from Eastern Idaho to St. Louis and eastern destinations. UP will send trucks to the shipper's loading shed and move them to Idaho Falls for transloading into railroad cars. The cars will be moved by train to St. Louis where the food products can quickly be transferred to trucks for final delivery.



RoadRailer trailers prepare to leave Chicago for Dallas.

RoadRailer Trailers Move to Dallas

Union Pacific began transporting shipments in RoadRailer trailers between Chicago and Dallas February 15.

UP purchased 175 of the trailers which ride directly on special railroad wheel assemblies. When the train arrives in Dallas, the trailers leave the railroad wheels behind and are driven directly to a shipper's loading dock.

Zoo Memberships Still Available

To purchase a 1988 Henry Doorly Zoo Membership at a discount price of $30, contact a Union Pacific membership drive team member.

Name	Department	Phone Ext.
Dee Anderson	Law, Room 830	5814
Michael Bolen	Commissary, Council Bluffs	3647
Lynn Frear	Omaha Shops	4314
Joyce Fuss	Security & Special Services	3128
Jon King	Contracts & Real Estate, Room 308	3670
Ken Koesler	Accounting, Braker-Brandeis	4204
Jon Krajcsik	Mechanical, Room 900	5349
Mike Larsen	Engineering, Room 1017	3401
Phyllis Lemonds	Labor Relations, Room 332	4514
John Lillard	Marketing & Sales, Room 1110	5248
Penny Lowe	Superintendent's Office	3062
Cal Meyer	I&CS, Room 116	5586
Bob Morgan	Purchasing, Room 200	3091
Mary Pallarat	Accounting, Braker-Brandeis	3963
Barb Randal	UP Realty, 6th Floor	280-4801
Diane Rodgers	I&CS, ReClaim Building	5290
Al Royal	Accounting, Braker-Brandeis	3974
Mike Senar	VPO, Room 1214	3424
Peggy Shephard	Public Relations, Room 605	5457
Bob Sutherland	Transportation, Room 1200	4371
Gwen Thomas	I&PO, Room 642	4141
Bud Williams	Building Superintendent, Room 112	3506
Mary Wright	Planning & Analysis, Room 720	5030

Crusading for clean wheat

Careful combining could net you a nickel premium

By LARRY REICHENBERGER

■ Despite wheat producers' resolutions, grain industry recommendations and congressional regulations, the grain the U.S. delivers to foreign buyers hasn't gotten any cleaner.

Recent grain quality legislation gives buyers a better idea of exactly what they're getting, but the reality is they're still getting what they've always gotten—two to three times more nonmillable dockage and foreign material, twice as many damaged, shrunken and broken kernels and up to half a point lower protein than other wheat-exporting nations supply, and at the same price.

"Now, which would you buy," asks Dana Herron, president of the Washington Wheat Growers Association. "It's not hard to understand why the Japanese, for example, buy from Canada and Australia first—they clearly get a better deal."

So who's to blame?

There's a consensus that almost nobody is illegally adding dirt to grain or purposely exceeding grain standard tolerances. The problem is that current standards and marketing practices encourage everybody from the farmer to the exporter to deliver wheat with as much dockage, foreign material and other negative grade factors as allowed.

"It's the system, and under it no profit-minded farmer or elevator operator would do otherwise," says Doug Bereuter, a Nebraska congressman and clean-grain advocate.

This disincentive to deliver clean grain is not part of the system in other wheat-exporting countries, however. In the last four years, U.S. wheat shipments arriving in Japan contained from 1.04% to 1.24% dockage and foreign material, depending on the class (see chart). Meanwhile, shipments from Canada and Australia averaged between .33% and .49%.

"The grain industry is making some short-term profit with this marketing approach, but it's a buyer's market, and if we don't clean up our act we're going to lose in the long run," says David Frey of the Kansas Wheat Commission.

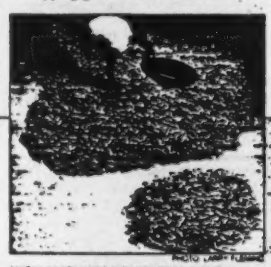
Separate legislation aimed at preventing those losses has been introduced by Bereuter and by Kansas Congressman Jim Slattery. Both proposals try to clean up exports by requiring the Commodity Credit Corporation to pay producers a premium for clean grain.

"The CCC is the largest buyer of grain in the world," says Bereuter. "All we're asking them to do is act like a smart buyer. They pay the same for a bushel that is 99% wheat and 1% foreign material as for a bushel that is 95% wheat and 5% foreign material. As long as they do that they encourage delivering foreign material."

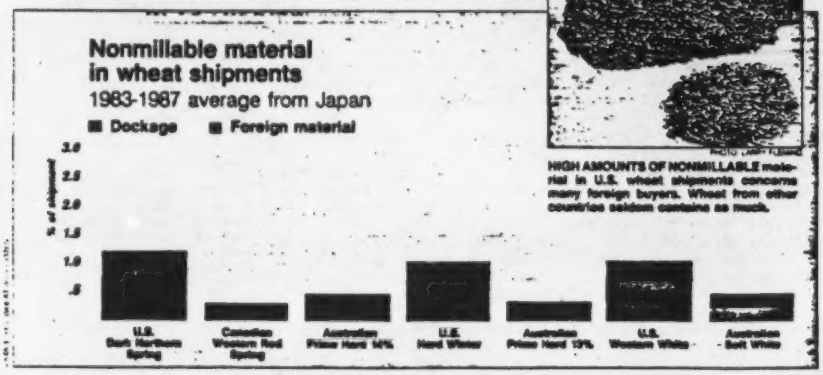
Slattery agrees, and says that if the USDA began paying premiums—perhaps 3¢ to 5¢ per bushel—for clean grain forfeited to the CCC under the loan program, commercial traders may soon follow suit. "This would establish our reputation for clean wheat, and sales would increase accordingly.

"The 1986 Grain Quality Improvement Act prohibits adding foreign material to grain. Now farmers and grain handlers need an incentive to keep foreign material out of the grain in the first place," Slattery says.

Both proposals also offer incentives to grain elevators and exporters. Slattery proposes to pay warehousemen a premium on CCC-stored grain they clean, and Bereuter wants to reimburse exporters for any margin they lose by shipping grain cleaner than their con-▷



HIGH AMOUNTS OF NONMILLABLE material in U.S. wheat shipments concerns many foreign buyers. Wheat from other countries seldom contains as much.



WHEAT-8

SEE WHEAT-8

tract specifications require.

Traditionally, the grain industry cringes at the thought of legislation that impacts their business. Reaction to these proposals is no exception. The industry stands to lose its ability to profit from blending clean grain, which it obtains without paying a premium, with dirty grain, which it buys at a discount, to create an average shipment of grain, which it sells at full price.

To offset that loss would be the government-paid premiums, the lower storage costs of clean grain and the possibly higher price the product might bring on the market. Though opinion is mixed, most industry officials are reluctant to make that trade.

"The CCC premiums would sweeten the loan rate, and more wheat would move into the loan program instead of the market. This would create an artificial market, disrupting current business patterns," says one industry official who asked to remain anonymous.

Frank McBride, who represents more than 70 local elevators as an executive with Evans Grain Company in Salina, Kan., is concerned about the proposals for other reasons:

"Most country elevators aren't equipped to keep the clean CCC grain separate from grain going through the regular market channels, so the change could be expensive for them. It could also be expensive for producers, because to make the legislation budget neutral, the discounts for dirty grain will be raised. Often, because of conditions beyond his control, a farmer has no choice but to deliver dirty grain."

However, the Washington Wheat Growers' Herron believes farmers are willing to pay that price to clean up exports. "We must accept more responsibility for wheat cleanliness," he says. "With a properly adjusted combine, I can harvest wheat with zero dockage, yet I've seen dockage and foreign material run as high as 8% locally."

Besides clean-grain legislation, there are also efforts in clean-grain education. With recent regulations making dockage in wheat reportable to the nearest .1%, rather than .5%, buyers can order wheat as clean as they want it by specifying a low level of dockage or making all dockage deductible. While millers in the U.S. domestic market have done so—virtually all order wheat 100% dockage deductible—foreign buyers have been slow to catch on. Even the Japanese, the most vocal in criticizing cleanliness of U.S. wheat, haven't altered their contract specifications.

"There are a number of reasons for this," says John Oades, director of the West Coast office of U.S. Wheat Associates. "Some, such as the Japanese, buy grain through complex government entities that are slow to change. In most cases, however, it's a matter of education—they simply don't appreciate the value of clean wheat."

To raise that appreciation, U.S. Wheat Associates are encouraging customers to experiment with dockage specifications. Also, in cooperation with USDA's Targeted Export Assistance Program, they are sending 3,000-to-4,000-bu. samples of wheat with specific quality factors, including cleanliness, to potential wheat customers.

"We've had good success drawing attention to specific quality factors," says John Sullivan, a wheat quality specialist in the Pacific Northwest who has worked with several of the shipments. "But frankly, none of the buyers has mentioned the cleanliness. These are buyers that traditionally receive Australian wheat. They just automatically assume it's going to be clean, so when they get a sample we've carefully cleaned, it looks like what they normally get from the competition." ◀

Clean wheat coming up

■ Earlier this month, a 50-car unit train pulled out of Lyman, Neb., carrying what many experts said couldn't be had in the U.S.—clean wheat!

A coalition of Nebraska wheat growers, grain elevator operators and officials from the Nebraska Wheat Board arranged the 165,000-bu. sale as part of Finland's purchase under USDA's Export Enhancement Program.

"Finland wanted clean, high-quality wheat and we provided it," says Wheat Board Director Dan McGuire. "This grain graded #1 with .1% dockage, zero wheat of other classes and 2% total defects. That compares with .7% dockage, 1.8% wheat of other classes and 3.7% total defects contained in the average load of Hard Red Winter wheat shipped out of this country last year."

McGuire and Wheat Board member Erv Friehe, a McCook, Neb., farmer, worked with the Lyman Elevator, which recently installed wheat cleaning equipment, to assemble the load.

"The grain trade tells buyers clean wheat isn't available in the U.S., or make it so complicated and expensive to get that buyers give up trying, but we've proven it can be done," he says.

The Finland sale isn't the first clean-wheat shipment the group has arranged—they've shipped several containerized samples in the last year. "And our next goal is to fill an entire ship with clean U.S. wheat," McGuire says.

PHOTO: CHET PETERSON JR.

THE U.S. CAN SELL CLEAN grain, says Nebraska Wheat Board Director Dan McGuire, right. Board member Carolyn Logue, Ron Stoddard, Nebraska Wheat Growers Association, and farmer Vic Haas wade in a sample of grain for export.

March 21, 1988 NE Edition High Plains Journal

Reducing dockage will reduce insect infestation

Dockage or non-grain foreign material, usually composed of plant fragments, often helps insects survive less favorable conditions, according to the KSU Extension Service.

For example the presence of dockage in very dry (8%) wheat definitely offsets much of the low-moisture stress. No significant decline in numbers was noted when dockage was added to the wheat. Without the dockage, however, the four beetle population declined over time and eventually became extinct.

Well adjusted harvesting equipment operated at recommended speeds helps minimize the amount of dockage contaminating the grain.

A properly adjusted and operated combine will also minimize the number of broken kernels. Damaged kernels play a very important role in encouraging the successful establishment of the bran bug group of storage insects. Fractures of other breakage enables these insects to gain access to or destroy more grain than would otherwise occur. Also local heating and subsequent moisture migration will be enhanced because of the greater food availability.

Careful attention to detail when using forced air drying will minimize the development of heatstress fractures which can also contribute to broken kernels. Another cause of cracked or broken kernels is excessive grain movement through dump pits, augers and legs made necessary because of poorly designed or laid out grain handling and storage facilities.

Passing the grain through a properly sized mechanical screener or scalper before binning or equipping the bin-delivery auger with perforated section of appropriate mesh size will eliminate much of the dockage and broken kernels.

Another method suitable for removing fines can usually be implemented in structures where the method of filling occurs over a central point if the bin-emptying auger draws grain specifically from the central core. Most of the fines will have been deposited in the central column if a grain spreader has not been used.

Subsequent removal of some of the grain from below accomplishes at least two usefull practices: A significant portion of fines can be removed because the majority of the grain is pulled from the central column and the peak at the grain surface is usually leveled to some degree. The limited volume of grain that must be removed may then be used for other purposes or screened and reloaded into the bin.

This core-removal method may be attactive to some operators because it does not require extra time or labor during the busy harvest season. On the other hand if timely removal is not practiced, and environment attractive to insects may have been created.

Although not always beneficial from the insect management stand point, in-bin concentrations of dockage and cracked kernels can be reduced by placing a gravity-operated grain speader at the peak of the bin just below the filling port.

Farm Storage Issue HIGH PLAINS JOURNAL Page 7-A

Clean grain aids in aeration

Grain stored as dry grain on the farm generally needs aeration and periodic inspections, according to Elwyn Holmes and Ted Hodges, KSU Extension agricultural engineers.

The first essential is the grain be clean. If it is not, quality diminishes because of uneven air distribution in the drier and aeration bin. Uneven air distribution results in variable grain moistures and temperatures which encourage insect infestation and quick mold growth.

Providing clean grain for storage starts with a good harvesting job, provided by proper adjustment and operation of the combine.

Next, it is a good investment to have a grain cleaner in the system at the point of field truck unloading. This cleaner should have a capacity equal to that of the unloading augers and cup elevator, and should be filtered with screens sized for the type of grain being handled. The screens will remove small particles such as dirt, dust and cracked grain.

If the combine is not doing a good job of removing trash, a scalper should be bought as a part of the cleaner.

Even distribution of grain into the bin is necessary for good storage.

Nebraska Wheat Board

NW

Grower Opinions Verified by SRI Poll Results

Ed Farr, Vice Chairman of the Nebraska Wheat Board, of Cedar Bluff, Nebraska.

"Over ninety percent of the state's wheat growers want the Nebraska Wheat Board to lobby more intensely for positive changes in federal legislation," says Ed Farr of Cedar Bluffs, Vice Chairman of the Nebraska Wheat Board.

"Impressively high percentages of the 1,000 wheat producers polled by SRI Research Center, Inc. believe the Wheat Board should devote the same or more resources to influence federal legislation in six major farm policy areas. A range of eighty-five to ninety-seven percent of the producers say lobby more to:

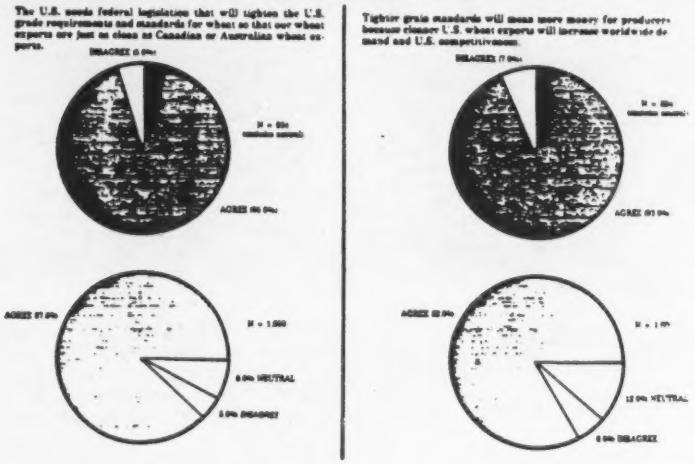
Expand Foreign Marketing Efforts	97%
Improve Wheat Quality and Cleanliness	96%
Improve U.S. Trade Policy	94%
Develop Industrial Uses for Wheat	93%
Bring Production and Supply in line with demand	89%
Increase Price Support Loans and Target Prices	85%

This list offers an opportunity for turning around the current condition of the U.S. wheat industry and ag economy," says Farr.

"It's great to know that a strong majority of Nebraska's 25,000 wheat producers agree on the major farm policy areas that affect the state's wheat industry, especially when it comes to influencing federal legislation and spending Wheat Board funds.

One area of particular interest is the issue of wheat and wheat product imports. Eight out of ten of the producers say the Wheat Board should lobby the U.S. Congress to stop wheat and wheat product imports from coming into the United States.

"Producers have obviously had enough of seeing the U.S. market flooded with imports such as wheat and wheat gluten from Canada and the EEC when high tariffs and trade policy keep our products out of their markets." Farr says.


The U.S. needs federal legislation that will tighten the U.S. grade requirements and standards for wheat so that our wheat exports are just as clean as Canadian or Australian wheat exports.
DISAGREE 6.0%
N = 504
AGREE 94.0%
AGREE 97.0%
N = 1,000
3.0% DISAGREE
Tighter grain standards will mean more money for producers because cleaner U.S. wheat exports will increase worldwide demand and U.S. competitiveness.
DISAGREE 7.0%
N = 504
AGREE 93.0%
AGREE 88.0%
N = 1,000
12.0% NEUTRAL
0.0% DISAGREE

United States Department of Agriculture
Federal Grain Inspection Service
Washington, D.C. 20250

December 1, 1987

Honorable E (Kika) de la Garza
Chairman, Committee on Agriculture
House of Representatives
Washington, D.C. 20515

Honorable Patrick P. Leahy
Chairman, Committee on Agriculture,
Nutrition, and Forestry
United States Senate
Washington, D.C. 20510

Dear Chairman:

In compliance with the United States Grain Standards Act (Act), as amended, the Federal Grain Inspection Service (FGIS) submits its fiscal year 1987 Annual Report to Congress. This report includes a descriptive summary and an evaluation of FGIS' principal program activities with financial and statistical data, where appropriate. The report also evaluates the FGIS internal accounting control system and the compliance with applicable statutes and regulations. Further, the effectiveness of the national inspection and weighing system is evaluated as part of the Report.

Public Law 98-469, enacted October 11, 1984, extended FGIS programs through the end of fiscal year 1988, authorized the Secretary of Agriculture to invest sums collected from user fees, and increased to 40 percent the limitation on administrative and supervisory costs. FGIS has submitted legislation to reauthorize the sunset provisions of the statute to continue its programs and the FGIS Advisory Committee through September 30, 1992.

The Grain Quality Improvement Act of 1986, Public Law 99-641, was enacted November 10, 1986, to improve the quality of U.S. grain. This law prohibits (1) dockage or foreign material once removed from grain from being recombined with any grain; (2) dockage or foreign material from being added to grain; and (3) reintroduction of dust to grain once removed. The USDA was also directed to publish a final rule to more accurately describe the level of insect infestation in grain; conduct studies of premiums for high-quality grain and uniform end-use value tests; and publish the optimal grain grading proposal. On June 30, 1987, FGIS published amendments to the regulations and the Official U.S. Standards for Grain to implement the provisions of this law. We plan to request an additional $1 million in fiscal year 1989 to cover the increased costs involved in administering the law.

FGIS' operating revenues during fiscal year 1987 were $32.4 million, with obligations of $29.5 million, yielding a positive net operating margin of $2.9 million. The total revenues included interest of $251,000 on investments of $5.0 million of fee account funds. The revolving fund closed the fiscal year with an unobligated balance of $10.5 million, which represents 4.3 months operating reserve.

Total revolving fund program obligations (actual operations) of $29.5 million for this fiscal year were $0.1 million below last year's level of $29.6 million. Administrative and supervision costs represented 32.1 percent of total program costs, which is below the statutory limit of 40 percent. Appropriated obligations of approximately $6.7 million plus revolving fund obligations of $29.5 million totaled $36.2 million, $0.2 million over fiscal year 1986 total program obligations. The operating budget for fee-supported activities ended the fiscal year at 81 percent of the total obligations.

Because FGIS earned a $2.9 million positive net operating margin, the $2.0 million balance of the $6.0 million supplemental budget appropriation was repaid this fiscal year to the U.S. Treasury. This supplement was received in fiscal year 1984 to recapitalize the revolving fund account.

Effective January 5, 1987, FGIS increased its fees by 17 to 42 percent for official inspection and weighing services performed under the Act. In addition, a fee was established to cover the costs incurred for the supervision of official Class Y weighing services performed by agencies for shipments destined for domestic markets. The fee increases covered FGIS operating costs in addition to maintaining applicable operating reserves. FGIS continues to monitor fees and cost-revenue patterns.

The FGIS Advisory Committee continues to play an important role in providing relevant advice to the Administrator on the programs and activities of FGIS. During the past fiscal year, the full Committee met quarterly and held one subcommittee meeting. The Committee addressed such issues as the implementation of the Grain Quality Improvement Act of 1986, uniform loading plans, wheat protein, deceptive practices, sorghum damage and odor, and financial management. The Committee specifically recommended that FGIS (1) lower by 0.2 percent protein the base line value for Hard Red Spring wheat and rebias the near-infrared (NIR) instruments accordingly; (2) should not prohibit recombining or adding dockage or foreign material to grain; (3) should not prohibit adding recirculated dust to grain; (4) should not amend the U.S. grain standards to treat all insects the same or use the same insect tolerance for all grains; and (5) should prohibit adding sweepings back to grain.

In summary, FGIS continues to strive to operate its programs in the most cost-effective and efficient manner possible. In the view of its constituent groups, FGIS is perceived as providing a needed service.

Sincerely,

W. Kirk Miller

W. Kirk Miller
Administrator

ii

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FORTUNE
MANAGING/COVER STORY

WHAT AMERICA MAKES BEST

A deep concern for product quality is turning many U.S. manufacturers into the world's top competitors. Here's how they achieve excellence—and preserve it. ■ *by Christopher Knowlton*

IT'S BEEN a long time coming, but American manufacturers finally have reasons to be optimistic. Profits are rising, and so are exports. With the engines of many industries revved up to capacity, the makers of the nation's merchandise predict further dips in the trade deficit. The weak dollar is doing its bit, of course, but so is the high caliber of U.S. manufacturing output. That's right, the quality of U.S. goods—so often deplored as fit only for the throwaway society that produced them—is improving. Says Dana Cound, chairman of the American Society for Quality Control, an international organization devoted to the quality-related sciences: "On virtually every front the quality of American products is better than it has ever been on an absolute scale."

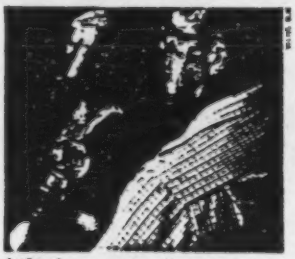
The image of American products is still that summed up by the common European attitude: You Americans don't make anything we want to buy. Or by the Japanese repairman who, when asked what was wrong with a garbage disposal machine he was fixing, replied, "It's American." Last year a Roper poll of West Germans found that only 6% of them considered the tag line Made in America indicative of quality. Then the newspaper *Frankfurter Allgemeine Zeitung* salted the wound in an April editorial that asked, "Which American products can a sensible European buy? . . . American industry really ought to get more innovative to interest our consumers."

Unfortunately, the pursuit of quality has rarely ranked high among U.S. manufacturing objectives. Tom Peters, in *Thriving on Chaos*, quotes quality consultant W. Edwards Deming: "Henry Ford made great contributions, but his Model T was not a quality car." In the years after World War II, there was so much pent-up demand for goods and services that U.S. consumers were often glad to take what they could get. Says Alexander Trowbridge, president of the National Association of Manufacturers and a former Secretary of Commerce: "We were operating to some degree on a philosophy of planned obsolescence. In that sort of world, quality takes a back seat. Ultimately we got hurt by it."

Today, with quality at the crux of global competitiveness, FORTUNE set out to determine which American products can be considered the finest of their kind. Examples exist in reassuring abundance, and a partial list is on page 54. Products were selected after consulting with quality experts, management consultants such as Arthur D. Little Inc., security analysts, academics, industry association representatives, Consumers Union, major customers, and other knowledgeable observers of the global manufacturing scene.

To be included, an item had to be state of the art—that is, at the height of innovation and technological advancement. It also had to be the most durable of its kind and provide good to great value for the price. In the cases of commodity items, where quality is tougher to judge, or of ties between competing products, the final selection was based on market share. The list turned out to be as heterogeneous as the society that manufactures the products: It is a mix of high and low tech, basic industrial and consumer goods.

Making distinctions between U.S. and foreign goods is often hard. The global marketplace is characterized by out-sourcing, joint ventures, and foreign subsidiaries (see Competition). Caterpillar and Xerox have joint ventures in Japan, and Toyota builds cars in California arm in arm with General Motors. Steinway & Sons makes pianos in Hamburg, West Germany, and in Astoria, New York. By FORTUNE's definition, a Made-in-America product is assembled in the U.S. by a U.S. company and fabricated from at least 50% domestic parts.



At Steuben, *a master craftsman uses a cherry wood paddle to shape this glass eagle.*

THE GLOSSIEST PAGES in the catalogue of America's best should be devoted to agricultural equipment, aerospace products, computers, and pharmaceuticals. The U.S. is the global leader in these industries, with many goods exemplary for their technological innovation and quality, and all four are big exporters.

American know-how also knows how to manufacture excellent medical instruments. The magnetic resonance imaging (MRI) scanner looks for diseased tissue without surgery, and the laser angioplasty catheter heads upriver like an icebreaker, clearing a path through plaque-obstructed veins. In a less high-tech area, Minnesota Mining & Manufacturing conceives of an endless array of tapes, coatings, and abrasives (see box, page 45). The U.S. also gets A's for craftsmanship in luxury items as diverse as leather handbags, fly-fishing rods, and mink coats.

Among the many products that restore the

Deere technicians *in Waterloo, Iowa, test the sound of a row-crop tractor's engine so the noise won't fatigue and distract the driver.*

REPORTER ASSOCIATES *Rosalind Klein Berlin, David Kirkpatrick, Stephen J. Madden*

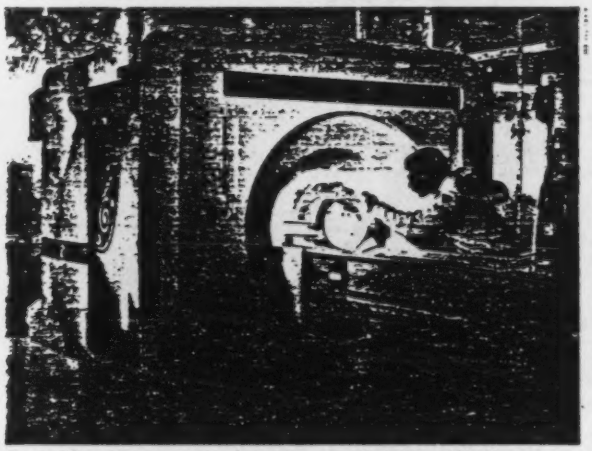
definition of quality to the words Made in America.

▶ **F-16 aircraft.** Wolfgang Demisch, director of research for UBS Securities and an aerospace analyst, describes General Dynamics' plane as "the standard setter for combat aircraft . . . It keeps the peace and we sell a lot of them." F-16s are powered by General Electric or Pratt & Whitney jet engines, which are standard setters in their own right. They also come packed with the most advanced gadgetry, including guidance radar from Westinghouse. Now 14 years old and selling for $18 million, in its class the plane is still top gun in a dogfight.

▶ **Computer workstations.** Sun Microsystems makes what quality consultant A. Blanton Godfrey calls "definitely the best workstations in the world. Even the Japanese use them." Engineers, scientists, and other technicians employ the machines for computer-aided design and desktop publishing, the development of artificial intelligence, securities trading, and scientific research.

▶ **Biotechnological drugs.** At the heart of this industry is the ability to synthesize in the lab substances that are normally manufactured by the body to fight disease. Genentech's t-PA, a clone of one of the body's own enzymes, dissolves blood clots in the treatment of severe heart attacks. Last December, t-PA broke first-month sales records throughout the world for the launch of a pharmaceutical product. Says Peter Drake, director of equity research at Vector Securities International: "Here is an industry where we are long on brains, money, and implementation."

▶ **Pacemakers.** The device made by Medtronic of Minneapolis leads in world market share. Says Dr. Mark Sherrid, a cardiologist at St. Luke's–Roosevelt Hospital Center in New York: "We use Medtronic's pacemakers because we think they're at the leading edge of the technology. The company has a wide variety of pacemakers that enable a physician to choose one suitable for each patient. The physician can program them from the outside and adjust them to the patient's needs."



General Electric's ***magnetic resonance imaging system, being tested near Milwaukee, goes beyond a CT scanner in its ability to locate diseased tissue. It costs more too: $2.2 million.***

▶ **Satellites.** Of the 345 satellites in space, 148 belong to the Soviets, 136 to the U.S. The rest are distributed among 13 other countries and international organizations. American-made satellites have longer operational lives than satellites built in other countries. In 1989, Hughes Aircraft will finish building *Intelsat VI*, commissioned by a 114-country consortium for international usage. *Intelsat VI* will be the largest telecommunications satellite ever, capable of carrying 120,000 telephone calls and three television broadcast signals simultaneously. It will have greater coverage of eastern North America and wider communication with Europe.

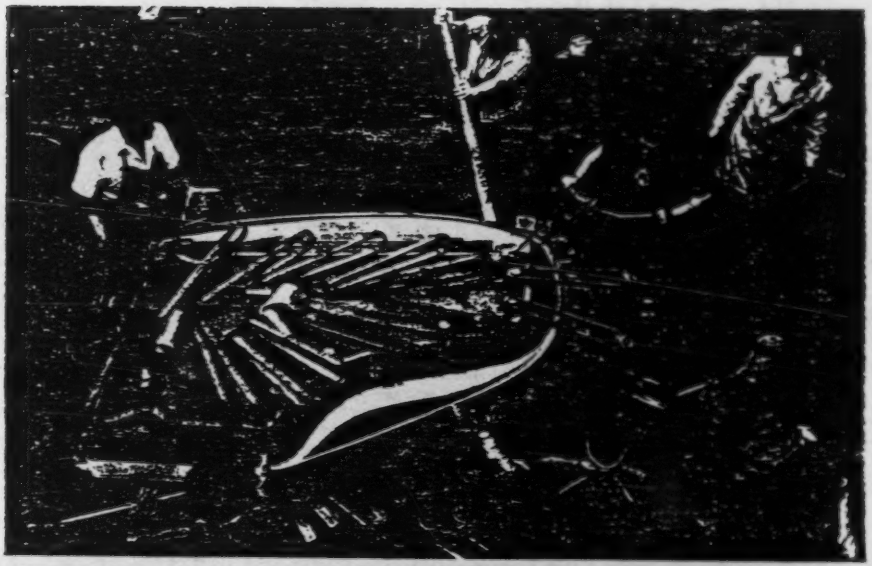
▶ **Stereo speakers.** The best-selling speakers are medium-priced products that cost $400 to $600 a pair. Of all the mid-range speakers sold in America and ranked by *Consumer Reports*, the Advent, Allison, and Infinity brands take top honors, scoring 92% in fidelity of sound out of a perfect 100%.

▶ **Towels and bed sheets.** Take it from Stanley Marcus, former head of Neiman-Marcus: "The Italians make beautiful linen bed sheets for the luxury market, and silk bed sheets that are even fancier, but in the broad category of cotton percales, nobody does it as well as the Americans." The U.S. advantages lie in design, color coordination, and the quality of this tightly woven cotton—still grown better in California and Texas than anywhere else in the world.

The manufacturers of these products have created goods that meet or even exceed worldwide standards of excellence; more than that, these standards are maintained year after year. No one holds a monopoly on quality. It is an attainable goal for every manufacturer. Says Stephen Cohen, co-director of the Berkeley Roundtable on the International Economy and co-author of *Manufacturing Matters*: "I don't believe quality is any cultural secret. I think there are learnable things to do to achieve it."

The best products are designed not so much to meet specifications and fulfill customer *requirements* as they are to match or surpass customer *expectations*. Steinway & Sons likes to say it builds pianos to a standard, not to a price. The company refuses to skimp on materials, labor, and effort in the construction of a musical instrument that is as close to perfection as the hand and cunning of man can make it. Though the Hamburg factory puts mahogany and red beech in its piano rims, the New York factory uses the denser maple to give the American Steinway a brighter, more powerful tone. Says Larry Fine, author of *The Piano Book*: "To put it simply, either one buys a piano or one buys a Steinway."

The form of an excellent product suits its function, and its innovation is evident. Last year Cameron Iron Works of Houston, Texas, won an engineering innovation award for an economical new piece of oil field equipment. The company created a pipeline connector that allows offshore tankers to cap a well temporarily in the event of a hurricane or other severe weather conditions. Cameron is betting there will be growing demand for the connector as oil companies move far-



rom pianos to planes to pacemakers, *achieving excellence still requires the human touch. Workers in Astoria, New York, bend a maple rim cad with mahogany around a seven-foot Steinway grand piano; final assembly begins for General Dynamics' F-16 fighter plane at the fuselage mating ation in Fort Worth; after removing the top of Medtronic's Activitrax pacemaker, an inspector in Minneapolis carefully examines the circuits.*

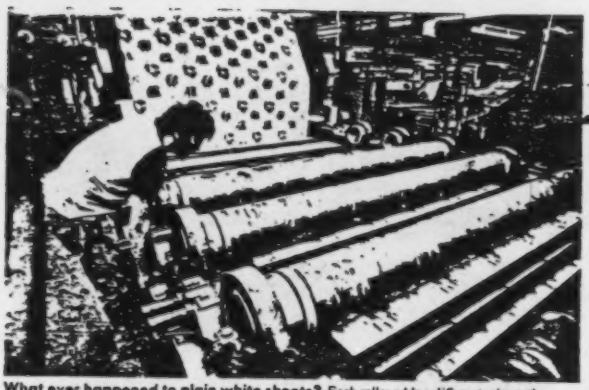
ler offshore in the search for new oil fields.

Processed-food companies have always een extremely innovative about packaging, ot only to attract the consumer who wants onvenience but also to win the fight for helf space. Now that two-thirds of American ouseholds have microwave ovens, both Hormel and General Foods are bringing out ew microwavable meals—called, respec-ively, Top Shelf and Impromptu. By virtue f packaging processes that pressurize, seal, nd steam the meal in a plastic container, the ood requires no refrigeration and can sit on a shelf without spoilage for up to 18 months.

Innovation can occur by serendipity: In fact, it usually does. Engineers from 3M and Boeing, looking for aerospace applications for a new drag-reduction coating, tested the material for the fun of it on rowing shells in Puget Sound. The results were so impressive that last year the coating, inscribed with tiny grooves that replicate sharkskin, was used on the hull of *Stars & Stripes* in its successful bid for the America's Cup. Crew members credited the coating with increasing the yacht's speed two-tenths of a knot and cutting ten seconds off its finishing time. 3M now sells the coating to sailors.

Among the world's best-selling drugs are a pair of billion-dollar-a-year U.S. entries for high blood pressure: Capoten from Squibb and Vasotec from Merck. Capoten resulted from the research of Squibb scientists who noticed that the venom of the Brazilian pit viper killed its victim by lowering its blood pressure. They found a way to synthesize the venom free of its terminal side effects.

The U.S. is world renowned in medicine and the applied sciences in part because in-



What ever happened to plain white sheets? *Each roller adds a different color to the pattern being printed on these bed linens at the J.P. Stevens plant in Clemson, South Carolina.*

dustry recruits the top international scientists, and many go on to develop new products. American companies have historically led the world in the number of drugs introduced each year, and are especially good at converting research into prescription products. They maintain their edge because they are willing to finance research and because they can raise capital for R&D from venture entrepreneurs and the public market and, like Merck, from the sales of successful drugs.

Between innovation and production comes product design. That's where the engineer is supposed to build in ease of use and aesthetics. Historically, that's also the place where American manufacturers have cut corners to save money. Companies that do design products properly consult the consumer to find out how he uses the item before contriving the design. For example, Apple Computer organizes focus groups of five to ten users to get customer comments before and during the design stage. Apple calls the procedure a "reality check." In the design process engineers also try to minimize the number of parts required to make the item. The fewer the parts, the smoother the assembly process and the more reliable the final product.

ONCE THE ITEM is ready to move onto the assembly line, the quality effort takes on a different complexion. The hunt has already begun for the best raw materials and the most dependable suppliers. Take the example of fly-casting rods: Walt Carpenter, an artisan in Chester, New York, spends 30 to 100 hours making superb rods that sell for up to $1,500. Carpenter uses a bamboo called Tonkin cane (*Arundinaria amabilis*) from Southern Asia. As Peter Passell writes in *The Best*, "Tonkin cane is not as light as graphite, but it is stronger . . . [It] imparts a very consistent, predictable feel that makes it the material of choice for expert flycasters." Levi Strauss continues to produce 80% of its jeans from 100% cotton denim, a lightweight durable fabric. Cone Mills, Levi's exclusive supplier of denim for the basic 501 jeans, can weave the fabric with only four or five defects per 100 square yards—a ratio Cone's foreign competitors cannot match.

Upgrading quality on the factory floor requires that manufacturers ride herd on their suppliers to improve the parts they deliver. Faced with competition from Toyota, Tennant Co. (see box, page 48), which makes industrial floor sweepers and scrubbers, enlisted the help of its suppliers to upgrade the parts. The company's purveyor of hydraulic cylinders reduced the number of defective cylinders from 6.4% of each shipment to 0.8%, and a supplier of small motors decreased his defect rate from 8.8% to 2.3%.

Once the parts are on hand, the assembly process must be done correctly from start to finish, with little or no tolerance for the post-assembly repairs known as "rework." Boeing employs a humdrum concept called "system integration" to build 747s that should last about 20 years. Computer bar coding helps the company keep track of 500,000 types of parts, ranging in size from a 7/16-inch rivet to a 103-foot-long wing section, that arrive from some 1,600 subcontractors in 44 states and 13 countries. Then workers aided by sophisticated software make sure that all the parts fit together to form one 747 in a mammoth factory in Everett, Washington.

A.T. Cross urges production workers to toss off the assembly line any pens or mechanical pencils they suspect are flawed. The company unconditionally guarantees its products against defects and does repairs free for the life of the pen or pencil. Fewer than 2% of Cross writing instruments have ever been returned for repairs.

At other companies, like Xerox and Tennant, line employees chart their defect rates and set goals for the workers to reduce them. At Tennant, one assembly worker has been so successful eliminating problems in the floor sweeper he puts together that the company stopped regular inspections of his machines three years ago. Quality-oriented manufacturers understand that it costs less to make the product right the first time. Says Philip Crosby, an independent quality consultant: "I see few companies where the pretax profit is as big as the price of not conforming to specifications."

No more pick and shovel work: *Joy Technologies' longwall mining equipment used in the Mettiki Mine in Deer Park, Maryland, bites into a coal seam and also into the cost of digging coal.*

KEEPING THE FIRES LIT UNDER THE INNOVATORS

■ Around this time of year, the noonday temperature in St. Paul, Minnesota, is three degrees below freezing, so it seems an unlikely spot for a caldron of innovation. Nonetheless, new products bubble up at a rate of more than 200 a year from the research labs that crowd Minnesota Mining & Manufacturing's 435-acre St. Paul campus. Many of 3M's innovations are modest variations of such ordinary but ubiquitous industrial and consumer items as masking tape, coatings for highway reflectors, and sandpaper.

Some 6,000 scientists and engineers are continually stirring the pot, primarily in chemistry and applied science. In all, the company makes some 60,000 products that last year produced revenues of $9.4 billion, up 10% from the year before. Operations in 50 other countries accounted for 40% of those sales. Assisted by the ailing dollar, earnings rose 18% to $918 million. In FORTUNE's annual survey of America's most admired corporations, 3M most recently ranked No. 6—out of 306 entries. The company is often cited for its ability to keep innovation alive in a large, necessarily bureaucratic organization.

The man responsible for seeing that the fires don't go out is Allen F. Jacobson, 61, known as Jake, who joined 3M as a chemical engineer straight out of Iowa State University in 1947. In contrast with his popular predecessor, Lewis Lehr, Jacobson is strict and a little cold. He once rebuked the minister at his Presbyterian church for preaching that one person's profit is another's loss. Collaring the young man after the service, Jacobson informed him tersely that his remarks were "not in line with our country's best economic thinking."

While hardly the type to encourage the entrepreneurial whims of 3M's researchers, this Calvin has a dash of the Good Shepherd. To be sure that his flock of innovators share their ideas, Jacobson keeps his organization relatively decentralized. Information flows to the top from clearly defined reporting relationships and lots of shoptalk. He says, "You can't make too many of the decisions on the executive floor. You have to depend on the people who are close to the market and the technology."

Under Jacobson, 3M continues to codify many of the practices that preserve the innovative spirit of its scientists and engineers. Researchers are encouraged to spend 15% of their time pursuing pet projects that might have a payoff for the company down the road—a pastime they call "bootlegging." The stick behind that carrot is that 25% of each division's annual sales are expected to come from products developed in the prior five years.

Small groups staffed with a researcher and a marketer push inventions through the design and development stage. It takes an average of seven years from a product's invention to its successful introduction, although the trek can be made in less. Though Post-it notes took six years, some tapes take only one. Ultimately, 60% of the ideas wind up on the lab floor, but Jacobson wryly notes, "Outsiders say we are very lenient in rewarding failure."

One superior product fresh from the labs is the first videocassette tape for the Super VHS video recorder. The tape, which 3M hopes will be the industry standard by the 1990s, improves picture resolution by capturing 400 lines of broadcast information vs. the standard 230.

Besides coming up with new products, the labs are also supposed to protect and extend the product line against the encroachments of competitors. A case in point: In 1980, 3M developed the first water-activated synthetic casting tape used to set broken bones, but by 1982 eight other companies had brought out copycat products. When 3M researchers discovered that some of these tapes were actually easier to apply than 3M's, they retreated to their labs to develop and test 140 new versions in a variety of fabrics, before introducing the next year an improved product that was stronger and easier to use.

In 1985, 3M's earnings declined 9.5% when the lofty dollar pummeled sales. Though Jacobson responded by cutting costs 35%, he spared R&D spending. Through this period, it actually rose from 4.5% of sales in 1980 to 6.6% today, a figure roughly twice the U.S. average for manufacturers. Now the company is reaping the benefits of that investment.

Every so often the caldron produces a witch instead of a winner. Recently a line of air ionizers used to remove dust from the air in factory production facilities began leaking radiation. Though 3M maintains that the ionizers pose no serious health threat, it recalled them, fearing they would taint the company's reputation. When asked about that reputation, Jacobson dismisses all the business buzzwords and phrases save innovation and the pursuit of quality. "These are the tools for staying ahead in our increasingly competitive society," he says. For a man who goes one on one with God's anointed, he practices what he preaches.

One of the 60,000: a Gamio Meter to test light reflection

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MAKING IT RIGHT THE FIRST TIME

■ In 1979, Tennant Co. received two pieces of life-threatening news. Word arrived at Minneapolis headquarters that a potentially fatal defect had appeared in the motorized factory floor sweepers that it was exporting to Japan. The sweepers were chronically dripping oil. The second piece of news was Toyota's announcement that it was bringing out a competing product. In an all-out effort to save its 40% North American market share, Tennant, the world's biggest manufacturer of floor maintenance equipment, embarked on an ambitious, by-the-book quality improvement program that over the next few years upgraded its sweepers and scrubbers from good to great. Today the company has 60% of the North American market and 40% of the world market; sales grew from $98 million in 1979 to $167 million last year.

Sweepers travel in crates or in moving vans.

President Roger Hale started the process of upgrading the company's goods by consulting quality expert Philip Crosby. Arguing that the product had to be made right the first time, Crosby recommended that the company eliminate its rework area, where 18 of the most experienced mechanics fixed mistakes made during the assembly process. The repercussions of Crosby's reform were enormous: Workers had to make fewer blunders and catch those they did make. In order to eliminate errors, management and workers, brainstorming in small groups, developed scores of new assembly procedures that changed the shape of assembly lines and rerouted the delivery of parts. Employees were taught statistical process control, a method of monitoring defects and setting goals to reduce them.

The group that looked into the oil leaks discovered that the company's engineers had ignored the latest hydraulics technology, and a number of the assembly workers had been improperly trained to put together the hose joints. Worse, 16 different suppliers were delivering fittings and hoses made to varying specifications. As a result, the parts didn't go together properly. Once the workers had been retrained and the number of suppliers reduced, leaks—which averaged two per machine in 1979—occurred in fewer than one of every 18 machines by 1986. Says Roger Hale proudly: "The leadership on the quality program has come from the factory floor."

Tennant succeeded in protecting its leading market share and enhancing its reputation within the industry. Better yet, says Robert Maples, a security analyst with Piper Jaffray, "improved product quality is largely credited with forestalling Toyota's expansion into the U.S. market." Morale has soared. Murals of paddling loons, grouse, and jumping bass adorn what were once bare factory walls. The floors shine, and the workers gladly show off their handiwork to visitors while chatting knowledgeably about quality control. Employees award each other teddy bears—known as Koala T. Bears—for taking the initiative in problem solving and achieving quality goals.

Every 18 months, to keep things in sharp focus, the company celebrates Zero Defect Day with a magic show and other live entertainment. At the end of the all-day fete, the workers renew their pledge to do their work correctly. "It sounds corny," says Maples, "but the corniness works."

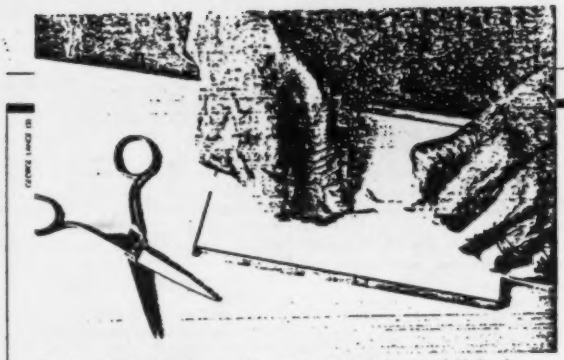
A tradition of craftsmanship endures in many smaller businesses. At Crane & Co. (see box, page 52) the borders on the sheets of stationery are hand-etched, and the bows that hold the writing paper and envelopes in the box are still hand-tied. The world's best-tailored mink coats have traditionally come from Manhattan's Seventh Avenue. The furriers, many of them immigrants from Southern and Eastern Europe, use a secret solution for dressing the skins. Then in a process known as "letting out" they cut, stitch, and stretch the pelts before sewing the long strips together into a coat. Jill Vander Putten, head of fur design at the Fashion Institute of Technology, explains that it takes years of apprenticeship to learn these techniques. Says she: "In Asia and Europe they don't have the necessary experience, but they are improving."

NEW STANDARDS of quality keep surfacing in manufacturing. What leads today risks obsolescence tomorrow. Author and consultant Tom Peters calls this sad pattern the "champ to chump syndrome." The color television, the video recorder, the computer memory chip, textile machinery—all are regrettable examples of products the U.S. created only to let the competitive advantage slip offshore. Xerox, once the uncontested leader in photocopiers, saw its world market share drop from 82% to 41% in six years as a result of Japanese inroads into the copier business.

The achievement of quality, the experts will tell you, must be an ongoing process. Says Blanton Godfrey: "Look how fast products are improving, both in technology and quality. There is no just maintaining the lead. You have to be on a fast track, constantly improving at a good rate, or you will be overtaken." To avoid that fate in the midsize part of the copier market where it still leads, Xerox today makes a habit of competitive benchmarking. Company engineers pull apart competing products to see how they are made and then estimate the costs of production in a search for new, cheaper, and better ways to make their own copiers.

Even a product as basic as Levi's jeans has been adapted and improved to stay competitive since its invention in 1853 by a Bavarian immigrant for the miners in the California gold rush. "Over the years we have made in excess of 20 fundamental changes in our basic jeans," says Peter Thigpen, president of the Jeans Co., a division of Levi Strauss. "And I don't mean fashion changes. I mean changes like increasing the overlap on the fly from ⅛ of an inch to ⅝ of an inch. There is a

See page 52



The ribbons that hold the sheets and envelopes together in the boxes are tied by hand.

A REAL TIGER IN THE PAPER TRADE

■ In the weathered redbrick mills of Crane & Co. in Dalton, Massachusetts, cotton pulp flows like watery scrambled eggs through tiled vats on its way to becoming fine stationery and paper so durable the currency of the U.S. is printed on it. Since 1801, Crane's 100% cotton rag paper has offered a combination of strength, durability, and surface texture that is unsurpassed by other mass-produced papers.

Crane letterhead is used in the White House, and supplied to Tiffany & Co. where it is sold as their stationery. The company makes and sells tracing paper for engineers and architects, the paper for passports, and the high-tech glass-fiber paper used in materials such as formica. Crane is also the U.S. Mint's sole supplier of currency paper. Last year the privately owned firm had revenues just over $100 million.

The company has had some advantages in its effort to preserve the competitiveness of its products over its long history. Seven generations of Crane family ownership have provided a consistent management philosophy—one that vigorously pursues quality. A strong work ethic endures in the western part of Massachusetts, and Crane reinforces it with a generous profit-sharing program that distributes 25% of pretax profits to the employees. Many of the 730 workers are third- or fourth-generation employees of the company.

Excellence takes effort. Unlike most makers of rag paper, Crane controls the manufacturing process from the purchase of raw materials to the final engraving. The company buys two kinds of cotton: raw cotton from Texas and California, where the best is grown, and cutting scraps from men's underwear, also among the softest and finest weavable cotton. Why cotton? Says Wayne Cronnell, director of quality control: "It is a long, clean, stable fiber that produces an extremely durable sheet of paper."

The papermaking machinery is imported from West Germany or made by two local companies, Sandy Hill and the Jones division of Beloit. "We buy the Mercedes of the industry when we buy equipment," says Tom Sedgwick, superintendent of the stationery division. Only the finest water-soluble pigments are used for the inks and dyes.

Finishing touches are done by hand. When it comes to painting the borders of the cards and stationery, 12 women workers gently spread out a stack of papers, making sure an even width of border shows on all the sheets before sponging on the ink. Says Sedgwick: "You try and find me a machine to do this. Nothing can match the accuracy of the human hand and eye."

Wet lap, the shredded cotton fiber

MANAGING

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constant drive around here for self-renewal.

Boeing, too, renews itself. Since the 747 introduction in 1970, its flying range has increased from 5,200 miles to 8,500. In January the company introduced the 747-400, sticker price, $120 million. By slashing the number of lights, gauges, and switches on the instrument panel from 971 to 365 and by using digital electronics, Boeing was able to reduce from three to two the number of pilots needed to fly the plane. The company also made the 747-400 some 13% more fuel efficient and added a six-foot winglet at the tip of each wing to help eke out an extra thousand miles.

Factory automation is a popular response to the competitive pressures of staying ahead, but by itself it does little to solve the quality problem. You just get the same quality articles more quickly. Says quality authority Armand Feigenbaum of General Systems Co.: "The notion of trying to achieve quality leadership by managing through robots rather than through people is specious." Maintaining excellence boils down to managing—managing the technology, the labor force, the managers themselves.

THE COMMITMENT of the senior people to the quality process is unquestioned at the companies that make the best products. Executives field customer complaints on hot lines, personally test the products, and meet at least weekly to address quality issues. Quality becomes, in Feigenbaum's words, "an ethic."

The last ingredient for maintaining quality—and the single most important one—is that sales-force bromide, know your customer. There is a better-educated, more cynical buyer out there with little patience for poor quality. He wants products that work the first time and is willing to pay for them. To respond to customers' changing needs and expectations, the manufacturer must be nimble. Flexible manufacturing helps. Companies like Deere and Tennant can customize a product to a buyer's specifications. Even a venerable producer of commodity items like Levi Strauss knows it must keep up with its customers. The story of the copper crotch rivet on the 501 jeans is a case in point.

According to company lore, copper rivets were added to the Levi jeans pockets and seams in 1873 to protect the pants from ripping under the weight of a miner's tools or, in the words of a Virginia City prospector, "nuggets bigger than your thumb." But when jeans became fashionable in the 1930s, the denim-clad smart set discovered that the rivets on

the back pockets scratched chair backs, the paint on the hood of a car, and anything else the wearer sat on. The back-pocket rivets were removed, but despite occasional complaints from cowboys, the crotch rivet remained. In the late 1930s, Walter Haas Sr., the company president, went on a fly-fishing trip wearing a pair of 501s. One night he squatted close to the campfire, which heated the rivet. In the whooping war dance that followed, Haas the president met Haas the customer. A week later the board of directors abolished the copper crotch rivet by unanimous vote.

As the copper rivet anecdote suggests, the achievement and preservation of product excellence take common sense, diligence, and attention to details—as they always have. What is different today is that the pursuit of quality, whether in planes, pacemakers, percales, or pianos, is no longer voluntary. If U.S. industry expects to win still more customers and market share, it has no choice but to improve its products. For the customer, quality is irresistible. For industry, it is essential. ☐

100 Products That America Makes Best

All-electric plastics injection-molding machine Cincinnati Milacron
Aluminum foil Reynolds Metals
Atomic clock Frequency Electronics, Hewlett-Packard
Ball point pens A.T. Cross
Balloon and laser angioplasty catheters C.R. Bard, Eli Lilly, Trimedyne
Bamboo fly-fishing rods Walt Carpenter
Bed sheets and towels Burlington Industries, Dan River, Dundee Mills, Fieldcrest Cannon, J.P. Stevens, Springs Industries, West Point-Pepperell
Biotech drugs: t-PA Genentech
Bobcat skid-steer loaders Melroe
Boots and hunting shoes Timberland, L.L. Bean
Brain electrical activity mapping system Nicolet Instrument
Camera film (color) Eastman Kodak
Central office switching equipment AT&T
Charcoal briquettes Kingsford Products
Charge couple device image sensor Eastman Kodak
Clothes dryers Whirlpool
Combines Case IH, Deere
Computer operating systems software: MS-DOS, Unix, VM, VMS Microsoft, AT&T, IBM, Digital Equipment
Copiers Eastman Kodak, Xerox
Cotton denim Cone Mills
Cruising sailboats, 37 feet and under Pacific Seacraft
Crystal Steuben Glass
Data parallel supercomputers Thinking Machines
Digital plotters Hewlett-Packard
Dishwashers General Electric
Distributed database management technology Tandem Computers
Ditch Witch trenchers Charles Machine Works
Drugs: Capoten and Vasotec Squibb, Merck
Dustbuster Plus hand-held cordless vacuum cleaners Black & Decker
Electrodeposition primers PPG Industries
Electrohydraulic servo valves Moog
F-16 jet fighters General Dynamics
Fast food: hamburgers McDonald's
Financial, engineering, and scientific hand-held calculators Hewlett-Packard
501 jeans Levi Strauss
Flashlights Mag Instrument
Flutes Wm. S. Haynes
FM two-way radios Motorola
Frequency and time interval analyzers Hewlett-Packard
Fur coats Peter Dion, Goldin-Feldman, Ben Kahn, Maximilian, Louis Milone
Glass fiber for communications Corning Glass Works
Gore-Tex waterproof breathable fabric W.L. Gore
Handbags Coach Leatherware
Hay and forage equipment Ford New Holland
Heating controls Honeywell
Heavy earthmoving equipment Caterpillar
Ice cream and sorbet New York Fruit Ice
Industrial and commercial floor sweepers and scrubbers Tennant
Instant camera film Polaroid
Integrated voice and data communications systems (T-1 multiplexers) Network Equipment Technologies
Intelsat VI satellite Hughes Aircraft
Ion chromatographs Dionex
Jazz music
Jet aircraft: 747 family of planes Boeing
Jet engines General Electric
Kevlar fiber Du Pont
Loader/backhoes Case IH
Locomotives General Electric
Longwall mining systems Joy Technologies
Lycra spandex fiber Du Pont
Magnetic resonance imaging scanners General Electric
Marlboro cigarettes Philip Morris
Mass spectrometers Finnigan
Men's ready-to-wear suits Oxford Clothes
Micro-precision machine and measuring tools Moore Special Tool
Microprocessors: Motorola 68000 family, Intel 80X86 family Motorola, Intel
Microwavable food in shelf-stable packaging: Impromptu, Top Shelf General Foods, Geo. A. Hormel & Commercial Can
Microwave ovens Litton Industries
Minicomputers Digital Equipment, Hewlett-Packard, IBM
Minisupercomputers Alliant Computer Systems, Convex Computer
Multimeters Hewlett-Packard, John Fluke Mfg.
Offshore drilling equipment Cameron Iron Works
Oscilloscopes Tektronix
Pacemakers Medtronic
Paper towels Procter & Gamble, Scott Paper
Personal computer applications software Lotus Development, Microsoft, WordPerfect
Personal computers Apple Computer
Pianos Steinway & Sons
Post-it note pads 3M
Powerboats Cigarette Racing Team, Donzi Marine
Pressure transmitters for industrial process plants Rosemount
Row-crop planters Case IH
Scotch S-VHS videotape 3M
Scotchcal drag reduction tape 3M
Sheet and strip stainless steel Allegheny Ludlum
Soft drinks Coca-Cola
Stationary Crane
Stereo loudspeakers International Jensen, Allison Acoustics, Infinity Systems
Sunglass lenses Corning Glass Works
Supercomputers Cray Research
Symbion J-7 and Thoratec artificial hearts Symbion, Thoratec Medical
Tampax Tambrands
Technical workstations Apollo, Silicon Graphics, Sun
Teflon Du Pont
Telephone sets AT&T
Thermos vacuum containers Halsey Taylor / Thermos
Thin film hard disks Komag, Seagate Technology
Tillage equipment Krause Plow
Tractors, 100 hp and over Deere
Washing machines Maytag, Whirlpool

Where Is
U.S. WHEAT?

Senator EXON. Mr. Chairman, if I could just add a word to that on a related matter that I know the chairman was very much interested in.

Over on the Committee on Commerce, Science and Transportation, where I chair the Subcommittee on Surface Transportation, which is a very important committee for agriculture, because as far as export is concerned, we cannot export it from our section of the country—yours and mine, and Erv Friehe's—unless we have proper transportation.

We have all kinds of difficulties out there right now with regard to shortage of grain cars, and I must salute the Union Pacific Railroad for their efforts. I have worked with them, and with the various farm organizations, and they are bending over backward to try and help us out during this difficult period.

But as a part of that surface transportation, I want to alert you, and the people in agriculture, that I will be holding a hearing in the near future with regard to the Canadian Free Trade Agreement, and it is my perception at least, that the Canadians—because they export a higher percentage of their wheat than even we do in the United States—have done a better job, by and large, of grading, and done a better job, by and large, of making their wheat top quality as compared with what we have done in this country.

We have a potential problem with regard to the so-called Free Trade Agreement, as to its overall adverse effect on agriculture, and I know that you and I have discussed this at some length.

A new potential problem has arisen, in that since the Canadians are very diligent on their grading, there is always a potential danger, I think. Not only with the Free Trade Agreement, but further clogging our already overburdened rail system in moving, particularly wheat and other products in agriculture, as far as that goes, to market. You know, that would further clog it.

The second, and probably more important consideration in this area is, that if there are not provisions of some kind in that so-called Free Trade Agreement, that agriculture is beginning to look with a more skeptical eye as we go forward in this area.

If we do not straighten out the matter of grading and how it is going to be handled, there is always the possibility that undergraded Canadian wheat could have free movement into North Dakota and Minnesota, and other of the border States, and there is always a danger of it being blended there with higher grade American wheat.

The blending by the eventual shippers of this wheat to the overseas markets is one of the problems that we have had from the very beginning. So we are going to take a look at that, and if you would care to testify before the Subcommittee on Surface Transportation when I hold a hearing, we would very much like to have your input. Thank you very much.

Senator CONRAD. Thank you very much, Senator Exon. I would be very interested in doing that. I have just asked for an analysis, by the way, on the effect of the Free Trade Agreement on the domestic farm programs.

One of the things that we find is that there is a potential for that U.S.-Canadian Free Trade Agreement to cost the domestic farm program literally hundreds of millions of dollars because you have

the free flow of grain between our countries, and in those years in which we become a residual supplier and the farm program costs are rising, we will be subsidizing Canadian farmers.

We have asked the Congressional Research Service to do an analysis of what the potential costs of the Free Trade Agreement are to the domestic farm program.

We are also experiencing the kinds of problems you have had with the hopper shortage and the transportation problem. It has been acute in our State. If your railroads down there have done a good job, maybe you could get them to provide some advice and consultation to ours, because we have had a real problem.

Senator EXON. It is not easy, Mr. Chairman, but we find that if we work hard enough on them, or with them—depending on your point of view—we get a little cooperation.

I think the study that you are having done is particularly important. I would point out the fact that unless—and when I refer to the Canadian Free Trade Agreement, I always use the words so-called Canadian Free Trade Agreement. I am not sure it is free for agriculture or the American taxpayer.

We have got another potential problem there. How are we going to separate out Canadian wheat from American wheat under this program with regard to the Export Enhancement Program?

I mean, are we going to be having wheat coming across the border from Canada, and then are we going to subsidize it in the international marketplace?

There are all kinds of potential problems here that I do not think have begun to be looked at in detail yet. Thank you, Mr. Chairman.

Senator CONRAD. Thank you very much, Senator Exon. I appreciate your being here.

Next we will hear from Cecil Watson, the chairman of the North Dakota Wheat Commission. Cecil, if you want to provide your testimony, then we will complete this panel. We will come back to ask questions, because I think already some issues have been raised that ought to be addressed.

Kirk, if you are willing to stay, I think based on what is happening here, we might want to move through this panel, go through the next one, and then have you come back to respond to some of these panels so we will get a chance for you to fully respond before we conclude the hearing. Cecil, please begin.

STATEMENT OF CECIL WATSON, CHAIRMAN, NORTH DAKOTA WHEAT COMMISSION, BISMARCK, ND

Mr. WATSON. Thank you, Chairman Conrad and members of the subcommittee. I appreciate the opportunity to come here today to express my support for the reauthorization of the Federal Grain Inspection Service.

I am also speaking today on behalf of the National Association of Wheat Growers and the National Corn Growers Association.

As has been pointed out here today, the quality of wheat and feed grains exported from the United States has been a controversial issue in recent years, and of course whenever these things are in issue, the press seems to make a lot of play out of them.

I have never seen a report that says congratulations on sending better quality than we ordered. That does frequently happen, and is one of the problems. For instance—Durum leaving North Dakota—some years we did not have a lower grade of Durum. We only had good grade Durum. They ordered a lower grade and they get a better grade.

When they finally do get what they ordered, they are upset. So it can work both ways. I have traveled in Asia, Africa, and in South America, and generally I hear good reports on the quality of wheat coming from the United States.

CLEANLINESS

There is some concern about the cleanliness, and so I want to address several points today, one of which is cleanliness.

I congratulate FGIS on being instrumental in changing the way we report dockage on foreign shipments of grain. We used to round to the next lower half percent. Now we round to the nearest 10th percent. So we more accurately describe what the customer is receiving. I think that is an important change in the way we report dockage.

PROTEIN

You discussed at length with Kirk Miller the protein adjustment. Had all that grain been held by the farmers, I do not think you would have heard much of a discussion. I also took a little bit of a hit on that because I had some wheat in the granary.

No matter when you make an adjustment, someone is going to complain. Had all this grain been held by farmers, I do not think you would have had the problems or the hearings or the earlier discussion that you had this morning.

We think the adjustment that was made in protein was a necessary one. The complaints received by the people who were receiving that grain have stopped, so evidently there was some discrepancy in the way we measure proteins, the chemical analysis versus the near-infrared.

So those steps have to be taken when the problem arises, and unfortunately, some people do take a hit when that happens. But we approve what they did, as wheat growers.

INFESTATION

We also think the new rules going into effect on May 1 for infestation of grain are going to be beneficial to the exporter of wheat.

Any time you have grain in storage for long periods of time, like we have out on the farm in North Dakota, you are going to run into infestation problems. These are going to appear in the ships after loading.

So tightening the restrictions on infestations are important, I think.

One of the big complaints we hear is about not receiving the quality that was ordered. It is unfortunate that we have a ship loading plan that allows us to average the different lots of grain in the ship. Even though the certificate may say that the shipment meets the quality that is supposed to be there, some person on the

other end is going to get short-changed if they do not get the average of that shipment. Some get the lower quality, some get the higher quality, and of course you are going to hear the complaints from the people with lower quality.

SHIPLOT LOADING PLAN

There is a study going on, and it has been pointed out that FGIS is doing some work on changing the shiplot loading plan. We think that is important to us.

CLASSIFICATION

Wheat classification is an issue that is very important to North Dakota wheat farmers. We are supportive of the work that is going on in FGIS. The Wheat Classification Working Group has done a good job of doing research.

We feel that possibly, as Kirk Miller mentioned, these tests are going to be difficult to administer at the country elevator level. Out in the country, at harvesttime, we are unloading a truck every 3 minutes or so. You have to have a test that can be done in that length of time.

One of our fears out in the spring wheat area is that maybe some of the FGIS people are going a little bit too far in wanting to separate grain on the basis of its end-use milling characteristics. We cannot have that out in the country elevator. We cannot separate it to that degree.

There are some other issues that the corn people have. They would like to include some end-use characteristics. For example, if we are working with corn starch, maybe we do not need a whole kernel, this type of thing. So there are some issues that should be looked at as far as corn growers are concerned.

I have a couple of comments about the FGIS Advisory Committee. I agree with the people who earlier said that the committee should be expanded.

At the time they made decisions about protein, I was wishing there would have been a Spring wheat farmer on that panel. So I think we should include wheat growers from both the Hard Red Winter wheat area and Hard Red Spring wheat area.

We need more funding for FGIS to complete the research. Recently, the North Dakota Wheat Commission sent a letter to FGIS asking that research be done on a falling number test that might be a little quicker than the one we have now, because it is not going to be too long till sophisticated buyers like the Japanese are going to say we want wheat of a certain quality number.

If we cannot separate it out in the country, we cannot deliver what they want. You have my complete prepared written testimony there, so I will stop. Thank you for this opportunity.

[The prepared statement of Mr. Watson follows:]

Statement of Cecil Watson
Chairman, North Dakota Wheat Commission
Before the Senate Committee on Agriculture
Subcommittee on Agricultural Research and General Legislation
on FGIS Reauthorization
April 29, 1988

Good morning.

Thank you Chairman Conrad and members of the sub-committee for the opportunity to speak here today and express my support for the reauthorization of the Federal Grain Inspection Service. I am Cecil Watson, a wheat farmer from North Dakota, Chairman of the North Dakota Wheat Commission and member of the board of directors of U.S. Wheat Associates. I am also speaking today on behalf of the National Association of Wheat Growers and the National Corn Growers Association.

The quality of wheat and feed grains exported from the United States has been a controversial issue in recent years. Complaints by importers, which all too often appear in press reports, frequently cite excess amounts of dockage or infestation and insufficient protein content in the U.S. wheat received. While much remains to be done to improve this situation, much progress has been made over the past two years. The Federal Grain Inspection Service has been able to make important changes using its existing authority, and has done so in consultation with such industry-wide groups as the Grain Quality Workshops and the Wheat Classification Committee. I would like to review for you some of the areas where progress has been made.

CLEANLINESS. While progress has not been dramatic, an important change has been made in the reporting of dockage in wheat to give the importer more accurate information. Dockage previously was reported to the next lower half percent, which tended to under-report the amount of dockage. As a result of a change made by FGIS a year ago, dockage is now reported to the nearest tenth percent. This method is more equitable and informative for the buyer. In addition many importing countries have taken advantage of this change to revise their specifications either to limit the amount of dockage allowed or to discourage the shipping of excessive amounts of dockage.

PROTEIN. Important changes have been made in the measurement and reporting of protein. FGIS has taken a number of steps over the past year to bring the results of its protein measuring equipment into closer agreement with the results obtained from chemical analysis. These changes came in response to grower complaints and complaints from buyers of high protein wheat who found the protein they received to be consistently lower than certified by FGIS. Once the legitimacy of these complaints was established, FGIS moved quickly and effectively to resolve the problem and correct their measurement techniques. It is my understanding that FGIS has also established monitoring systems to ensure that such a discrepancy does not recur. FGIS has also changed its reporting of protein to a fixed moisture basis. The fixed moisture basis is more meaningful to millers and bakers of wheat and is the basis commonly used by other wheat exporting countries.

INFESTATION. Rules are to go into effect on May 1 of this year to reduce sharply the number of insects that may be found in samples without a vessel being declared infested. Existing rules have been overly permissive and could allow relatively large numbers of insects to be present. In some cases it was found that vessels that importers complained about actually had large numbers of insects found during loading, but not enough for the vessel to be declared infested and to require fumigation. While not being a complete solution to infestation problems, this change should certainly reduce the number of vessels which importers find to have insect problems.

In addition to the changes already made concerning dockage, protein and infestation, other important quality areas are under study by FGIS.

SHIPLOT LOADING PLAN. The shiplot loading plan is the statistical method used by FGIS to determine whether the samples inspected during loading of a vessel indicate that the grain meets the contract requirements or not. Through the work of a university statistician employed by FGIS to review its loading plan, FGIS has determined that the existing plan in use is biased in favor of the shipper. This means that the existing plan allows the shipper to load poorer quality grain than what could be fairly expected to be allowed by the contract. Since this discovery, FGIS has worked diligently with various industry groups to find an alternative plan that would correct this inequity and not be unreasonably burdensome for the shipper. The organizations I represent expect an alternative to be published for comment within the next one-two months. While it is unfortunate that the existing plan has been used at all, once the problem became clear, FGIS has been able to act using its existing authority to correct it.

CLASSIFICATION. Development of new wheat varieties has made it increasingly difficult to distinguish visually between hard and soft wheats and between spring and winter wheats. FGIS, in cooperation with the industry Wheat Classification Committee and the Agricultural Research Service, has been researching alternative methods to determine these distinctions more objectively. The results of this work may have major implications for the marketing of U.S. wheat of all classes for many years to come. While the solution to this problem is still unclear, it again appears that FGIS has the authority and is using its authority to search for and implement a solution.

In addition, we would encourage FGIS to begin research on the value of including end-use value characteristics in corn standards, not in lieu of existing numerical standards but rather, to enhance existing standards.

In view of FGIS' existing ability to respond to many of the concerns raised by producers, importers and others interested in grain quality, it appears that the existing authority of FGIS is sufficient. The organizations I represent recommend reauthorization of FGIS without changes in its authority.

Before concluding my remarks, I do, however, want to point out a couple of areas of concern which may be of interest to this committee. One is that FGIS needs adequate funds to conduct research in grain inspection methods. In order to respond to the needs and expectations of buyers and processors of wheat, FGIS will be increasingly called upon to make use of advanced technology to determine quality factors more accurately and objectively and to determine more relevant quality factors. My understanding is that revenue from user fees cannot be used by FGIS to develop new methods. That type of work can only be done with appropriated funds, which currently are not sufficient to allow FGIS to develop the technological capabilities it requires now and will require in the future. The organizations I represent therefore support the appropriation of additional research funds for FGIS.

The other area of concern is the FGIS Advisory Committee. FGIS has been very responsive to the recommendations of the industry Grain Quality Workshops and the Wheat Classification Committee, and much of the progress detailed earlier resulted from the willingness of FGIS to accept advice from these groups and others. However, it seems unfortunate that the official body created to advise FGIS has played little or no role in making these changes. I believe the Advisory Committee could become more effective if it it more adequately represented all segments of the grain industry concerned with quality and inspection issues, including producers, academia, processors, and domestic and export trade.

Thank you for this opportunity to present these views. I would welcome any questions you may have.

Senator CONRAD. Thank you very much, Cecil. We appreciate your taking the time to join us here today, and also representing the wheat growers and the corn producers.

Next we will hear from Chris Teigum, chairman, Soybean Quality Committee, American Soybean Association.

Chris, welcome. Please proceed, and then we will have a chance for some questions.

STATEMENT OF CHRIS TEIGUM, SOYBEAN AND CORN FARMER, CHAIRMAN, SOYBEAN QUALITY COMMITTEE, AMERICAN SOYBEAN ASSOCIATION, MADELIA, MN

Mr. TEIGUM. Thank you, Mr. Chairman, and thank you for the opportunity to appear before this subcommittee today in support of reauthorization legislation for the Federal Grain Inspection Service.

As you noted, I am Chris Teigum, soybean and corn farmer from Madelia, Minnesota. I represent the American Soybean Association as chairman of their Soybean Quality Committee, and, I, too, would like to summarize my written testimony and ask that it be included in the formal hearing record.

Senator CONRAD. Without objection.

SUPPORT FOR REAUTHORIZATION

Mr. TEIGUM. The American Soybean Association supports congressional action to reauthorize FGIS through September 30, 1993. We view FGIS as essential to orderly marketing of grain and grain products.

PHILOSOPHICAL SHORTCOMINGS

FGIS is simultaneously a service and a regulatory agency. FGIS has carried on both roles, but has concentrated most efforts and energies on the service function. FGIS remains reactive rather than proactive to the regulatory function. This is the result of a stated philosophy of making no change in regulations or standards without consensus within the industry. While it may be desirable to obtain consensus, strict adherence to such a policy is contrary to the regulatory function inherent in the mission of FGIS.

SHIFT IN STANDARDS CRITERIA

Our organization has recognized a shift in the philosophy of FGIS under the current Administrator, a shift toward accepting input from all segments of the grain market. FGIS also seems more accepting of its regulatory mandate. The American Soybean Association would like to see this progress continued.

GENERAL RECOMMENDATIONS

To improve the function of FGIS and the effectiveness of grain standards to convey economic information, ASA makes several recommendations.

First, reexamine the current grading factors and factor limits in view of the expanded function of standards as outlined by the Grain Quality Improvement Act of 1986.

Second, develop a procedure to distinguish between grade determining factors and as requested information-only factors.

Third, include more producers and scientists on the Advisory Committee.

Fourth, develop wider communications with the private sector in communications activities and contemplated actions.

Fifth, direct attention to new technologies capable of converting subjective inspection procedures to objective measurements.

ASA'S QUALITY AGENDA

The American Soybean Association has an agenda of quality issues that we feel would add to world competitiveness of U.S. soybeans in the world market. For the record, we urge that the FGIS be directed to consider the following changes to soybean standards.

First, we favor defining a bushel of soybeans on the amount of dry matter it contains.

Second, we support official analysis of soybeans for protein and oil content.

Third, we favor marketing soybeans on a zero foreign material basis.

Last, we desire no standard changes that do not take into account a cost/benefit analysis, and we further suggest that future revisions to the U.S. Grain Standards take into account the findings of the Office of Technology Assessment research required by the 1985 farm bill.

CONCLUSION

In conclusion, the American Soybean Association strongly favors reauthorization of the FGIS. We feel that FGIS is on the right track, and with the proper direction and support, will fulfill its goal of maintaining an inspection and weighing system second to none.

Mr. Chairman, I will be glad to respond to any questions you may have and thank you for this opportunity to offer this statement.

[The prepared statement of Mr. Teigum follows:]

STATEMENT OF CHRIS TEIGUM
SECRETARY

AMERICAN SOYBEAN ASSOCIATION

BEFORE THE

SENATE SUBCOMMITTEE ON AGRICULTURAL RESEARCH
AND GENERAL LEGISLATION

ON REAUTHORIZATION OF FGIS

APRIL 29, 1988

Mr. Chairman and Members of the Subcommittee:

Thank you for the opportunity to appear before this Subcommittee today in support of Federal Grain Inspection Service (FGIS) reauthorization.

I am Chris Teigum, a soybean and corn farmer from Madelia, Minnesota, here representing the American Soybean Association in my capacity as chairman of the Soybean Quality Committee. The American Soybean Association is a national non-profit organization with members in 29 states, receiving financial support from 420,000 soybean farmers.

Support for Reauthorization

The American Soybean Association supports congressional action to reauthorize FGIS through September 30, 1993. We also support FGIS authority to charge and collect inspection and weighing fees, the investment of trust funds generated in interest bearing accounts, a cap on total administrative and supervisory costs which may be incurred for fee-based services to no more than 40 percent of assessed fees, and continuation of FGIS' advisory committee. We view continuation of the FGIS as essential to orderly marketing of grain and grain products.

User fees are warranted and ensure that beneficiaries of services pay for them. We support the cap imposed on administrative and supervisory costs for fee-based services since it forces cost efficiency upon the agency, while appropriated funds provide for support of needed research, supervision and compliance activities. While we are not in total agreement with the composition of the advisory committee, it has tremendous potential value to the Administrator if fully utilized.

This does not mean that the American Soybean Association does not recognize areas within FGIS where improvement is necessary. Indeed, the fading credibility of FGIS certificates in world grain trade as evidenced by proliferation in the use of independent

surveyors, is but one symptom of underlying weaknesses in the system.

In this statement, after reviewing FGIS' mandate from Congress, ASA offers several recommendations for congressional consideration in pending FGIS reauthorization legislation.

Philosophical Shortcomings

FGIS is simultaneously a service and a regulatory agency. FGIS has carried on both roles, but has concentrated most efforts and energies on the service function. As a result, few changes to established grades and standards have originated with FGIS. Rather, most changes have been in reaction to pressure from outside forces. FGIS remains reactive rather than proactive to the regulatory function, primarily as a result of adherence to a stated philosophy of making no change in regulations or standards without consensus within the industry. While it may be desirable to obtain consensus, strict adherence to such a policy is contrary to the regulatory function inherent in the mission of FGIS.

Shift in Standards Criteria

FGIS is being forced to strengthen its regulatory function as a result of the provisions of the Grain Quality Improvement Act of 1986. This Act refocused the responsibility of FGIS to develop grain standards that:

- define uniform and accepted descriptive terms to facilitate trade in grain
- provide information to aid in determining grain storability
- offer end users the best possible information from which to determine end product yield and quality
- provide the framework necessary for markets to establish grain quality improvement incentives

This emphasis on providing information of economic value is much more progressive than the original inspection function of "determining the physical and biological condition of grain at the time of sampling."

Our organization has recognized a shift in the philosophy of FGIS under the current Administrator, a shift to be more responsive to all segments of the grain market and more progressive in its regulatory function. The American Soybean Association would like to see this progress continued.

General Recommendations

At the same time, we have some general recommendations that we think would improve the function of FGIS and the effectiveness of

grain standards in conveying economic information. In this regard we offer the following recommendations to require FGIS to:

1. Reexamine the current grading factors and factor limits in view of the expanded function of standards as outlined in the Grain Quality Improvement Act of 1986.

2. Develop a procedure to distinguish between grade determining factors and information-only factors and to determine which information factors should be mandatory (performed on every official inspection) and which should be performed on an as-requested basis.

3. Bring balance and add to the scope and effectiveness of the advisory committee by including more producers and scientists, either through altering its current composition or expanding its membership.

4. Develop wider communications with the private sector in communicating activities and contemplated actions. This would bring a heightened awareness of the FGIS role and build its credibility.

5. Direct attention to new technologies capable of converting subjective inspection procedures to objective measurements.

ASA's Quality Agenda

The American Soybean Association has an agenda of quality issues that we feel, if enacted, would add to the competitiveness of U.S. soybeans in world market. For the record, we urge that FGIS be directed to consider these changes to soybean standards.

First, we favor defining a bushel of soybeans on the amount of dry-matter it contains. This not only reduces the incentive to blend wet soybeans into dry soybeans, but also greatly reduces the variation in end product yield. This is a controversial issue since it involves a fundamental change in determining quantity.

Second, we support official analysis of soybeans for protein and oil content. FGIS is currently involved in field testing near infrared reflectance instruments with the aim of offering such analysis by the 1989 crop.

Third, we favor marketing soybeans on a zero foreign material basis. This would reduce the incentive to blend foreign material to the limits of the contract.

Last, we desire no standards changes that do not take into account a cost/benefit analysis and would suggest that future revisions to the U.S. Grain Standards be take into account the findings of the Office of Technology Assessment research mandated by the 1985 Farm Bill.

Conclusion

ASA strongly favors reauthorization of FGIS, particularly when we harken back to the situation that led to the creation of FGIS just over a decade ago. We feel that FGIS is on the right track and with proper direction and support will fulfill its goal of "maintaining an inspection and weighing system second to none."

Mr. Chairman, this concludes my statement. When appropriate, I will be glad to respond to any questions you or other members of the Committee may have. Thank you for the opportunity to offer this statement.

Senator CONRAD. Thank you very much. We appreciate the testimony of all of the members of this panel. I have asked Kirk to rejoin us because we have gotten a number of very specific recommendations from this panel, and I did not want to lose this opportunity, Kirk, to give you a chance to respond and give us your view, because as we consider this matter in the weeks ahead, I want to make sure that we have your input on each of these matters.

Let's go back to the testimony that Erv gave for a moment and then proceed through some of the other specific recommendations.

Erv recommended that the mission statement be expanded so that quality improvements become a stated objective. What is your reaction to that recommendation?

Mr. MILLER. Well, it was very interesting. I had learned of the Nebraska Wheat Board's interest in revising our mission statement right after we had returned from a senior management long-range planning retreat, at which we had just revised our mission statement.

We shortened it from a paragraph to approximately a long sentence. We had not incorporated it in a direct manner in which I think the Nebraska Wheat Board was interested. We expanded upon our service, and regulatory roles in a slightly different manner, in which they have indicated their interest is in directly delineating all of the objectives that were stated in the Grain Quality Improvement Act.

I do not really disagree with that. It makes our mission statement longer. Philosophically, we do not have a major problem with a decision that would expand the mission statement.

Senator CONRAD. All right. The second specific proposal that we received, in a little different formulation from every member of this panel, was on our Advisory Committee makeup. Cecil mentioned it, Erv mentioned a specific proposal of four producers, and we also had the recommendation from Chris on adding academicians, and more producers.

Cecil mentioned during the protein controversy that he wished we would have had a little more expanded representation from various elements of the wheat community. Let's just go back to that and give you a chance to respond.

I had already asked you about the Advisory Committee. What we are hearing is fairly consistent, that there needs to be more representation from producers and academics, if we were to sum it up, I think, fairly, here.

What is your reaction to including more producers and more academicians?

Mr. MILLER. Well, my reaction is as I indicated earlier. I think that that authority should be preserved for the Secretary to make a determination in terms of the allocations. The current Advisory Committee does represent all of those interests. Every group would obviously like to have their own representative on the committee.

Every commodity organization in the United States would obviously like to have a representative on the committee, and maybe they are entitled to it. Every trade association representing the different merchandisers, State groups and others want representation, until at some point, it becomes totally unwieldy.

We think that the current Advisory Committee functions fairly well. Interestingly whenever we announce an Advisory Committee meeting is going to be held, we offer any interested party the opportunity to address the Advisory Committee by providing us with notice of their interest or intention of addressing the committee.

In the last year and a half that I have been Administrator of the Federal Grain Inspection Service, I think we have had maybe two requests. I know of one from John Oades, from U.S. Wheat Associates, to appear before the committee at its quarterly meeting last August in Portland to talk about the falling numbers test for wheat quality analysis. Also, the thing that has concerned me is the number of requests we get from groups to expand the Advisory Committee, and yet they fail to have representatives attend the meetings, or even sit in on the meetings to learn what discussions are taking place, or what activities are going on inside of FGIS.

Senator CONRAD. Let me ask this very specific question. If there was a determination to expand the size of the Advisory Committee, what do you see as the maximum expansion consistent with having a workable group?

Mr. MILLER. I would personally not like to see the committee expanded beyond 15 people.

Senator CONRAD. All right. A third point that Erv made, and that we have had others talk to us about, is taking $500,000 of the $5 million that is in surplus to fund a wheat varietal survey.

He also made mention of a classification test. Maybe you could give us your reaction to that specific proposal, and also give us some indication of the status of the studies of that type?

Mr. MILLER. I would be glad to. I would, first of all, like to correct the impression that there is only a $5 million reserve in FGIS right now. As of today, I think our reserve is actually closer to $13 million in our trust fund balance.

As we had indicated at the time the statement was written, we had $5 million of that $13 million reserve invested. As of today, I think that figure is closer to $7 million invested in Treasury bills. Investment authority was granted in the Omnibus Budget Reconciliation Act of 1984, which expires at the end of this year unless we are reauthorized.

I should point out that approximately one-third of the $13 million in our trust fund reserve was generated as a result of our commodity inspection program which includes the inspection of processed agricultural commodities such as flour and cornmeal.

Approximately one-third is attributable to the supervision of official inspection agencies that we license to provide the inspection services. Those agencies perform permissive inspection services in the interior part of the country.

The remaining one-third of that reserve is attributable to the original inspection and weighing activities at export elevators.

It is very important to point out the makeup of the reserve right now. We try to keep a 3-month operating balance for our operations. If we would not be exporting grain out of this country for some period of time because of a stevedores strike, a rail strike, or for some other reason, we would have to use those trust fund accounts. We must build a reserve to allow operating discretion to cover us in case of a problem.

If we stipulate and earmark the trust fund reserve for research, it could be damaging to the inspection system at some point in the future. We prefer that Congress provide a supplemental funding if in fact that is the direction Congress would like to see us take.

Senator CONRAD. Let me ask you a followup question. What is the status of the varietal survey and classification test?

Mr. MILLER. The varietal survey was conducted by the ERS—a national agricultural statistics group—for many years. It is conducted on a national basis every 5 years. I understand that 1989 would have been the next scheduled national varietal survey.

Some of the States have conducted surveys of their own in the interim, but I understand that ERS has indicated to Congress that it will not have funding available to carry out that study in fiscal year 1989.

As a result a couple of States, including Kansas, are making an effort to fund a scaled-down survey just in the State of Kansas. I was not aware, until the House hearings the week before last, that the varietal survey was being viewed by some of the folks working on the wheat classification issue as a critical element to resolving the problem.

I have representatives present at all the wheat classification working group meetings. I read all the minutes of those meetings, and I have to confess that I was not aware that the varietal survey was a critical element in resolving our wheat classification dilemma.

Senator CONRAD. Erv, would you want to make a followup comment, or ask a question?

Mr. FRIEHE. Well, I think we gained part of our information from the CRS report for the Congress which states basically what Kirk has said, that the varietal research is tied to the classification work and the classification work is at a standstill.

And the classification of our wheats has been so critical, and our exports, because we are at a point in time now where we are classifying wheat by the area it is grown in. And so we are getting some complaints from overseas as to whether or not they really have gotten soft or hard wheat.

Mr. MILLER. I would like to offer a followup comment to it.

Senator CONRAD. Kirk, go ahead.

Mr. MILLER. I have not read the Congressional Research Service Report that Mr. Friehe refers to. I am aware that there is one, and I will make every effort to read it in the near future. But I think that possibly what they are alluding to is the project I described to you this morning, that is the 15,000 sample analysis project. When it was discussed almost a year ago—FGIS at that time did not have funds earmarked or allocated for that type of a massive project.

At that time it was an impossibility for us to carry out without using funds from other high-priority projects such as developing oil and protein tests for soybeans. We felt that these projects were going to be delayed and pushed back unnecessarily because we were going to get involved with this new project without any additional funding provided.

So I think that the Congressional Research Service picked up on that dilemma that we were in at that time, and that is what came through in their final report.

Senator CONRAD. All right. And as I understand it—I want to make sure the record is clear on this—that has been resolved? You have found a way of funding that, am I correct?

Mr. MILLER. We have, by taking funds from other high-priority projects and making this an even higher-priority project.

Senator CONRAD. And what kind of money have you allocated for that purpose?

Mr. MILLER. It is approximately $500,000.

Senator CONRAD. All right. The fourth point that I think we should get a response to—and maybe this is the most important point because we hear it a lot—is that Congress amended the Grain Quality Standards Act to prohibit the recombination of foreign material and dockage. Erv made reference to the vote of the Advisory Committee to go back and overturn what the Congress had indicated they felt needed to be done in this area. I would like your response on that question.

Mr. MILLER. The Advisory Committee is exactly that. It is advisory to the Administrator of the Federal Grain Inspection Service. Obviously, in this case, we did not follow their advice. We were instructed very definitely by Congress in the law to regulate against the recombination of dockage and foreign material, and we obeyed the law.

Senator CONRAD. All right. So there is no intention to pursue recombination given the clear congressional mandate not to allow recombination?

Mr. MILLER. No, sir. We have adopted regulations that are very clear and explicit in this area.

Senator CONRAD. All right. I just think it is important that we have that on the record, and that we all understand that we are marching off the same sheet music.

Is there any member here who would like to ask Kirk a question? If you do not mind, Kirk. Cecil.

Mr. WATSON. I do not want to ask Kirk a question. I want to say that I did not come with a lot of recommendations for FGIS at this particular hearing. It is just that we, as producers, work very closely with FGIS. In North Dakota, when I deliver a load of wheat to the county elevator, it is graded. It is not graded officially by FGIS, but for me it is an official grade because that is what I get paid on. I get a protein, I get a moisture, and they put on there No. 1 Northern Spring, or whatever it is.

So we did not come with a lot of recommendations for the FGIS today. We wanted to reauthorize them. We think that the work they are doing is important. We are pleased with the cooperation we have had between the producer groups, the industry groups and FGIS, and some expanded research funds I think would be appropriate for them, because I do not think they can use user fees for that type of activity. Is that correct?

Mr. MILLER. That is still a debatable issue within FGIS. We have been researching that, Cecil, and there are a couple of different schools of thought. We do not have a clear ruling from the Office of General Counsel or from the Office of Budget and Program Analysis to determine whether or not we could do that.

There is a case that could be made for either side of it, and I suspect that it will eventually require some type of a legal ruling.

Senator CONRAD. Is this issue something that we could help with in this reauthorization process? I would guess that there is. If we put in the reauthorization that you have the authority to use user fees to engage in those kinds of studies, there would not be much question anymore, would there?

Mr. MILLER. Obviously we intend to follow the law, sir.

Senator CONRAD. All right. Well, I tell you, my experience in the last few days has shown that is not true of every Federal agency. I have just had an experience in which, at least according to press reports—and sometimes you do not know about press reports—we have an agency saying that if they get a clear statement of congressional intent, they are not going to follow it in changing regulations. That I find fairly preposterous, but most likely the press is quoting people incorrectly.

Let's just follow up a couple of other questions Cecil.

Mr. WATSON. Senator, could I make an additional comment about the earlier panel you had this morning. I agree with Cooper Evans, that we cannot legislate all of these things, like grain standards, because you might get yourself in an area that it would be difficult to back out of, so I think working through the FGIS is the proper way to go.

The other comment is that Dr. Phillips said that we should, in the ASCS/Commodity Credit Corporation, more closely follow the premiums and discounts that are given in the marketplace.

And some of that grain is out there. I have grain out there now that is 1981 grain that I delivered. Some of the protein discounts and premiums have changed over that period of time. I view the loan as a temporary thing when I take a loan on my grain.

I do not consider the Government to be a marketplace for my grain. However, some of it is going to go there, the reserve grain that is going to be forfeited. I received $4 a bushel for that, and certainly it is going to be owned by the Government shortly.

I do not view the loan program, the Government, as a marketplace. I just view that as temporary funding for me so that I can orderly market my grain. I would disagree that we need to follow the discounts and premiums of the marketplace.

Senator CONRAD. All right. That is important to get on the record as well. Let me just raise with Kirk a couple of other recommendations that Chris made on issues that relate to soybeans, and other oils, and other crops as well.

He made a specific recommendation with respect to cleanliness, and with respect to soybeans on dry matter. I do not know if you heard his recommendation there, Kirk, but I would be interested in your reaction.

Mr. MILLER. I would only say that we have not addressed that issue yet. We want to make sure that we are sending clear and consistent signals to our producers in line with the four objectives that were stated in the Grain Quality Improvement Act of 1986.

I think it is very important that we consider the storability factors and all the other things. If in fact we go to a system of measuring oil and protein, or measuring bushel, test weight or other factors on a dry-matter basis, that farmers will soon figure out that it will be to their advantage to be as close to a dry-matter basis as

possible, to cause them to have the highest possible readings for these factors.

If, in fact, that becomes the case, we may be encouraging farmers to produce and store soybeans at moisture levels that may not be optimal for storage and might lead to additional breaking and shattering of the soybeans. We want to make sure that we are sending a clear and consistent signal that does not contradict some other signal we need to send.

Senator CONRAD. All right.

Mr. MILLER. We are not opposed to looking at it. We think it is very important.

Senator CONRAD. I think Erv wanted to say something.

Mr. FRIEHE. Yes. Mr. Chairman, I would like to make a further comment. We believe that FGIS is doing a very good job, and the things which we are recommending in our statement we hope would broaden the scope of the FGIS, so that we can promote and sell better quality and cleaner grain, and we note that from 1986 to 1987, that foreign complaints have gone up slightly. The more important figure is that the percentage of tonnage, complaints based on percentage of tonnage for 1986—1.84 percent for 1987, 3.69 percent of all of our tonnage shipped had a complaint. And so it is our effort to do anything that we can to broaden Kirk Miller's authority to where FGIS can correct the problems which we feel very strong about.

Senator CONRAD. Let me follow up on that. Kirk, I will give you a chance to respond on this point. Your tally of foreign buyer complaints about grain quality have shown a remarkable decline since the beginning of this fiscal year, and maybe we should just follow up on that.

In your judgment, what accounted for the rise in foreign buyer complaints in 1987, and the decline that we are seeing in 1988? You are quite right, Erv, we saw an increase in 1987, and in 1988 we are seeing a sharp decline.

Is it a change in market conditions? Do you think that is the major determinant here, or, what is happening, in your judgment?

Mr. MILLER. Market conditions are the leading factor in this particular matter. I think that if you look at last year's data, especially as relates to wheat, a very high percentage of the wheat complaints were attributable to the protein problem we were having.

We had 15 complaints last year that were attributable to wheat protein, and this was up from 7 complaints on protein the year before, 3 complaints on protein the year before that, and 1 on protein in 1984.

So the trend on protein complaints was steadily increasing, and this year we have had only two.

Senator CONRAD. What did we do for those who complained?

Mr. MILLER. We go back and review the file samples, and provide a response to each one of the complainers. Sometimes it takes us awhile, by the time we can gather the information.

Senator CONRAD. One of the things we have heard, which I will pass on to you, is that there is no sense in complaining because FGIS cannot do much for you if you do complain.

That has been in the press and we have read stories that make that assertion.

Mr. MILLER. Well, in general, I would have to say that is probably a pretty fair perception. The grain industry has contracts by which these trades are conducted that include arbitration provisions.

Our main function, again, is to make sure that the information we are providing is accurate at the time that the sample is presented to us for evaluation.

Oftentimes, if it sounds really out of line to us, we investigate the complaints by sending someone to the site.

And when that occurs, there are all kinds of reasons: buyer perception of what they were going to get versus what they got; sometimes you have divided cargo situations where the ship may have stopped at three or four ports, and portions of the cargo were unloaded at each one of those ports, and no one customer receives a uniform portion of the cargo.

The portion that the one person is complaining about, can be of inferior quality by comparison to the other portions of the cargo. There are many, many reasons for this. Again, our objective is to provide, an accurate certificate. It is up to the trade to arbitrate and use the contract provisions to work out any compensation, or any damages that might be owed to the eventual buyer.

This goes on every day. It goes on not only in the international marketplace, but in the domestic marketplace as well, and I think that is an appropriate place for it to occur.

Senator CONRAD. One final question, Kirk, and then we will go to the next panel, and I want to apologize to the next panel. We have obviously taken a good deal more time on the first two panels, but I hope you understand that we are trying to have a complete, full record, and have Kirk have every chance to respond because we are going to have to make decisions on these things. I think we are getting a fuller understanding of everyone's position by doing this.

What level of funding is FGIS providing for sunflower oil and protein content measurements, if any?

Mr. MILLER. I cannot put that in dollar terms for you today. I would be happy to supply it for the record. But we do have a commitment, an ongoing program in that area. I would be happy to provide that for the record.

Senator CONRAD. All right. I would be very interested in that.

SUNFLOWER SEED OIL COSTS

FGIS SUNFLOWER SEED OIL ANALYSIS COSTS—FISCAL YEAR 1988

	To date	Budgeted
Salaries and benefits	$38,689	$59,536
Equipment and supplies	650	1,500
Travel	685	2,000
Total	40,024	63,036

The above costs do not include rent, communications, et cetera.

The major portion of the salaries/benefits costs are for personnel assigned to the quality Control Branch's (QCB) sunflower seed monitoring program. This program requires that the two field offices (Grand Forks and Duluth) and the six other official service points/Agencies (Fargo, Enderlin, Aberdeen, Superior, Jamestown, and

Fargo) each send 10 samples per week to the FGIS Technical Center, in Kansas City, plus their analytical data. The samples are analyzed at the Technical Center and the data are compared and relayed to the original service point. Corrective action, if any, is based on these data. In addition, 10 samples are prepared and sent to each location per month. The samples are analyzed and data compared to FGIS-QCB data.

Approximately $9,000 of the $38,689 salary and benefits figure was for work in the development of a procedure to detect high oleic fatty acid content in sunflower seeds. This procedure is now in place and the high oleic fatty acid seeds are readily detected.

Senator CONRAD. One other thing I think we should get entered into the record. I am not sure we mentioned the specifics on the foreign complaints. Erv had figures for 1987. Have you got the figures for how we have done so far in fiscal year 1987 as compared to fiscal year 1987? Maybe we want to get those numbers in.

Mr. MILLER. I will be happy to supply those for the record.

Senator CONRAD. All right.

[The material follows:]

***** FOR FGIS DISCUSSION PURPOSES ONLY ***** (1984 - 5/12/88) FOREIGN COMPLAINT SUMMARY DATA

FACTORS	FY 1984 NUMBER	FY 1984 % BY WT.	FY 1985 NUMBER	FY 1985 % BY WT.	FY 1986 NUMBER	FY 1986 % BY WT.	FY 1987 NUMBER	FY 1987 % BY WT.	FY 1988 NUMBER	FY 1988 % BY WT.
EXPORT SHIPLOTS	5,120		4,558		3,769		4,869		3,393	
SHIPLOTS INVOLVED	27	0.5	103	2.2	61	1.8	166	3.7	34	0.7
SHIPS INVOLVED	26		99		52		142		30	
COMPLAINTS	22		71		42		59		18	
WHEAT LOTS INVOLVED	7	0.4	20	1.1	23	1.5	123	7.7	15	1.5
CORN LOTS INVOLVED	11	0.6	34	1.6	11	0.8	23	1.8	1	0.2
SOYBEAN LOTS INVOLVED	7	1.1	44	5.8	21	3.1	15	2.9	4	1.0
WHEAT										
PROTEIN	1	0.01	3	0.1	7	0.2	15	1.2	2	0.0
INFESTATION	-	-	6	0.5	5	1.3	6	5.5	1	0.1
TEST WEIGHT	-	-	1	0.01	-	-	1	1.3	-	-
DOCKAGE	-	-	6	0.3	1	0.1	7	1.3	1	0.8
MOISTURE	-	-	1	0.01	-	-	1	0.2	1	0.0
DAMAGED KERNELS	1	0.2	-	-	-	-	2	0.1	7	0.4
HEAT DAMAGE	2	0.1	1	0.02	3	0.1	-	-	2	0.2
FOREIGN MATERIAL	-	-	4	0.2	2	0.1	7	1.2	-	-
SHRUNKEN & BROKEN	1	0.1	-	-	2	0.2	5	0.9	-	-
TOTAL DEFECTS	-	-	-	-	-	-	-	-	1	0.1
DARK HARD & VITREOUS	-	-	-	-	1	0.1	1	0.2	-	-
WHEAT OF OTHER CLASSES	-	-	1	0.01	1	0.04	1	0.01	-	-
FALLING NUMBER	-	-	-	-	-	-	2	0.07	-	-
DISTINCTLY LOW QUALITY	-	-	-	-	-	-	-	-	1	0.1
ODOR	-	-	-	-	-	-	-	-	-	-
WEIGHT	2	0.1	1	0.04	1	0.2	1	0.01	-	-
CORN										
INFESTATION	-	-	2	0.03	-	-	-	-	-	-
AFLATOXIN	3	0.3	1	0.2	-	-	1	0.0	-	-
HEATING	-	-	4	0.5	4	0.6	-	-	-	-
TEST WEIGHT	-	-	1	0.08	-	-	-	-	-	-
MOISTURE	-	-	1	0.06	6	0.6	-	-	-	-
DAMAGED KERNELS	2	0.1	7	0.6	4	0.3	5	0.7	1	0.2
HEAT DAMAGE	2	0.03	-	-	-	-	1	0.1	-	-
BROKEN CORN & FM	3	0.2	12	0.9	5	0.4	14	1.5	1	0.2
DISTINCTLY LOW QUALITY	-	-	-	-	-	-	-	-	-	-
ODOR	-	-	-	-	-	-	-	-	-	-
WEIGHT	-	-	2	0.2	-	-	-	-	-	-
SOYBEANS										
FREE FATTY ACIDS	-	-	-	-	5	1.1	2	1.6	1	0.1
OIL	-	-	-	-	-	-	-	-	-	-
PROTEIN	-	-	-	-	-	-	-	-	1	0.1
INFESTATION	-	-	1	0.2	-	-	-	-	-	-
HEATING	-	-	-	-	1	0.1	-	-	-	-
TEST WEIGHT	-	-	2	0.4	-	-	-	-	-	-
MOISTURE	-	-	7	0.8	3	0.5	-	-	1	0.3
DAMAGED KERNELS	-	-	21	2.8	12	2.8	5	2.1	-	-
HEAT DAMAGE	-	-	-	-	-	-	-	-	1	0.1
FOREIGN MATERIAL	8	1.0	19	3.8	9	1.6	8	2.6	2	0.3
DISTINCTLY LOW QUALITY	-	-	-	-	-	-	-	-	-	-
ODOR	-	-	-	-	-	-	-	-	1	0.3
WEIGHT	-	-	-	-	1	0.9	-	-	-	-

Senator CONRAD. Thank you very much. I appreciate the participation of all the witnesses of this panel, and, again, Kirk, I appreciate very much your willingness to respond and if you will just stay there, and we will have the next panel come up. [Laughter.]

Next we are going to hear from Arvid Hawk, chairman of Grains, Grades and Weights Committee of the National Grain and Feed Association; Steve McCoy, executive director of the North American Export Grain Association; and Lawrence Neumann, president of grain marketing for the Benson-Quinn Co. of Minneapolis, and representing the National Grain Trade Council, a member of the Council's Board of Directors.

Welcome, Mr. Hawk, Mr. McCoy, and Mr. Neumann. Just so we set the ground rules, based on what has happened so far, you can see that we are running over so we have to make an adjustment. Each of you have 30 seconds. [Laughter.]

Mr. Hawk, please go ahead.

STATEMENT OF ARVID HAWK, MANAGER, GRAIN HANDLING OPERATIONS, CARGILL, INC., CHAIRMAN, GRAIN GRADES AND WEIGHTS COMMITTEE, NATIONAL GRAIN AND FEED ASSOCIATION, WASHINGTON, DC

Mr. HAWK. Thank you, Senator. I can sum up my comments in 30 seconds. We think FGIS ought to be reauthorized.

But seriously, we do have a few points that we would like to make. I am chairman of the Grades and Weights Committee of the National Grain and Feed Association.

Our association is comprised of 1,300 member companies that are involved in all segments of the grain industry, from country elevators through processors and exporters.

And obviously, all of our members are vitally interested in the integrity of the Federal Grain Inspection Service. We know, in our ongoing discussions with FGIS, that they have had challenges in the last few years, and we are quite pleased to say that we are happy with the way that they have generally responded to those challenges.

Some of these challenges relate to intermarket grading differences, which can be very disruptive to orderly markets. Most problems have been minimized, and those that do occur are dealt with very quickly by the Agency.

I would like to talk a little bit about the grain quality workshops that were put together in 1985, consisting of producer groups, processor groups, the Federal Grain Inspection Service, the Foreign Agriculture Service. ASCS has also participated.

In those workshops we have had very good discussions about the details of the grain-quality issues. We feel those workshops have contributed a lot to the basic understanding of the total industry, as to what the problems are and the directions we should go, and there have been some very good recommendations that have come out of that group. In fact a good share of those recommendations have already been acted on by the Federal Grain Inspection Service.

For instance, the change in wheat dockage, and the protein reporting to a 12-percent moisture basis; tightening of the infestation

rules and tolerances; the development of end-use characteristics, which we have been hearing a lot about this morning; soybean, protein and oil, and even some discussions about a potential breakage test in corn; evaluation of the online shiplot loading plan which was also alluded to earlier this morning.

All those things have been recommended by this group, as a consensus approach by the total industry, and FGIS has taken those under advisement and has acted on them, responsibly, in our opinion.

Senator CONRAD. Could I just interrupt you there. You just mentioned something that I do not understand. What are you talking about when you are talking about the online shipping plan? What is that about?

Mr. HAWK. That is a statistically based loading plan, and maybe you have heard it referred to as the CU-SUM plan.

Senator CONRAD. Oh, yes. All right.

Mr. HAWK. Those evaluations are going on. I understand that an economic impact study is being developed right now, and those proposals will be out, soon, in the Federal Register.

The key is that this type of voluntary cooperation between the industry and the Government is the best way to solve our problems, in our opinion, and you get frank, open discussions. I forgot to mention the university groups have also been involved in those discussions.

In fact there were three university people coming to those meetings and the other organizations paid their expenses, so that there is that kind of cooperation going on.

So, in short, the National Grain and Feed Association urges Congress to reauthorize the Grain Standards Act in its present form. We support a 5-year reauthorization as requested by the Federal Grain Inspection Service.

The service that FGIS provides benefits all of agriculture by making available reliable, consistent grain-grading and weighing services.

At the same time, FGIS is striving to adopt new technologies and be responsive to a changing industry's needs.

Finally, we emphasize that the broad spectrum of industry participants are continuing to work together with FGIS toward the goal of improving grain quality through the industry sponsored grain quality workshops and other forums.

Again, we appreciate the opportunity to be here today, and will be willing to answer any questions that you might have.

[The prepared statement of Mr. Hawk follows:]

National Grain and Feed Association

TESTIMONY OF

THE NATIONAL GRAIN AND FEED ASSOCIATION

BEFORE THE

SUBCOMMITTEE ON AGRICULTURAL RESEARCH AND GENERAL LEGISLATION

COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY

U.S. SENATE

APRIL 29, 1988

Good morning Mr. Chairman and members of the subcommittee. My name is Arvid Hawk. I am manager of grain handling operations for Cargill, Incorporated in Minneapolis, Minnesota. As chairman of the Grain Grades and Weights Committee of the National Grain and Feed Association, I am here today to enter this statement on behalf of the Association.

Before getting into of the body of my testimony, I would like to point out that although Cargill is generally viewed as a grain exporter, we do have a significant number of country elevator operations as well as other domestic grain handling and processing facilities.

The National Grain and Feed Association is a voluntary association of grain and feed firms with more than 1,300 member companies ranging in size from the smallest country elevator to the largest grain and feed complex. Included in our membership are country and terminal elevators, merchandisers, processors and exporters covering the wide spectrum of the grain and feed industry. In addition, there are 40 state and regional grain and feed

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associations affiliated with the National Grain and Feed Association whose membership includes more than 10,000 grain and feed companies nationwide.

Members of the National Grain and Feed Association are vitally interested in maintaining the integrity and independence of our grain inspection and weighing system. Our members are users of official inspection and weighing services, and pay for those services. Our buyers -- both foreign and domestic -- are dependent upon the accuracy and integrity of inspection and weighing certificates. No group could be more concerned that the inspection and weighing of grain be efficient, cost-effective and above reproach.

Our Association's support of the U.S. Grain Standards Act has a long and well-documented history. The NGFA played a pivotal, leadership role in the enactment of the first Grain Standards Act in 1916. It was the grain industry that initiated, worked for, and recommended the rules for uniform grain standards and inspection procedures so that commerce might be conducted in an orderly and timely manner. We have been actively involved in each revision of the Act since that time.

Considering the many significant changes made to the U.S. Grain Standards Act during the last 15 years, the National Grain and Feed Association has taken, and will continue to take, an even greater interest in the Federal Grain Inspection Service and the U.S. Grain Standards Act. During the reauthorization of the Act in 1981, our association recommended -- and Congress approved -- three amendments to the Act:

-- First, that a statutory limit be imposed upon the level of FGIS supervisory and administrative expenditures to ensure that the agency maintained a streamlined and cost-effective weighing and inspection system. This action, combined with the management efficiencies implemented by the new FGIS administrator, corrected a situation in which the agency's bureaucracy had expanded in 1980 to

the point that for every dollar spent by FGIS to inspect and weigh grain, another 82 cents was spent to "administer and supervise" the inspection and weighing program.

-- Second, that the U.S. Grain Standards Act terminate every four years, with renewal only after Congress conducted proper oversight hearings.

-- Third, that an advisory committee be appointed by the Secretary of Agriculture to provide counsel to the FGIS administrator on operations of the agency and implementation of the U.S. Grain Standards Act. Congress incorporated these amendments when reauthorizing the U.S. Grain Standards Act as part of the Omnibus Budget Reconciliation Act (P.L. 97208) in 1981.

In 1984, Congress saw a need to incorporate other provisions to the Grain Standards Act during the FGIS reauthorization process. These provisions included: 1) an upward adjustment of the ceiling on administrative and supervisory cost to 40 percent; 2) establishment of a FGIS revolving fund reserve so that interest could be earned on fees collected by FGIS for grain inspection services; and 3) a renewal of the FGIS administrator's authority to appoint an Advisory Committee. National Grain and Feed Association recommended and supported each of these amendments in 1984.

In the past few years, U.S. export market volume has fluctuated greatly. FGIS has been asked to continue to provide a consistent quality of service during times of both increasing demand for service and dramatically eroding volumes. To this end, FGIS Administrator W. Kirk Miller has adjusted fee schedules, manpower and overhead costs to maintain a viable, efficient service with no loss in expertise. Further, intermarket grading differences have been minimized and those that do occur have been resolved quickly and long-term solutions implemented or sought. The FGIS funding mechanism adopted by

Congress -- namely, appropriating funds for necessary research, standardization and compliance activities -- provide the administrator with the flexibility to respond to such market variations while maintaining equitable costs for the industry and long-term research and compliance activities. This ensures that the integrity of the service provided by FGIS will not be compromised and that U.S. agriculture will continue to benefit from a cost-effective grain inspection system.

Grain Quality Improvement Act

One of the foremost challenges to FGIS in the last 18 months has been to implement the Grain Quality Improvement Act. This Act, passed in October 1986, has been implemented by FGIS through various rulemaking processes in a timely manner as directed by Congress. While we did not favor the action by Congress in directly legislating technical aspects of grain handling, FGIS has taken a highly responsible role in carrying out the intent of this legislation.

As a result of this legislation, a number of changes in grain grading standards have been made in the past year.

-- On June 30, 1987, extensive revisions were made in insect infestation tolerances for grain standards and new procedures for the rounding of numerical measurements were initiated;

-- On July 30, 1987, many grain handling procedural changes were implemented, including the prohibition on domestic elevators from recombining or adding dockage and foreign material. Further, broken corn and foreign material will be listed separately on official inspection certificates;

-- Effective January 1, 1988, export facilities were prohibited from recombining or adding dockage and foreign material; and

-- Beginning May 1, 1988, new tightened tolerances for insect infestation take effect.

One of the most important changes resulting from the Grain Quality Improvement Act of 1986 was the expansion of FGIS's mission. In the original Act establishing FGIS in 1976, the agency's mission was outlined as: 1) providing for establishment of grain grading standards; 2) providing an official inspection service to perform grading and weighing services; and 3) providing a grading system that permits grain to be marketed in an orderly and timely manner and that trading in grain may be facilitated. To these "traditional" FGIS missions, the 1986 Act added objectives of promoting the marketing of high quality grain; certifying grain quality as accurately as possible; providing information to aid in grain storability; offering information that permits determination of end-product yield; and providing a framework for markets to establish quality improvement incentives.

We appreciate the continuing interest of Congress in the quality of U.S. grain. As U.S. products compete with those of many other nations in a global marketplace, the quality of the commodities we have available for sale is important to our reputation as a reliable supplier. Like any other business, the buyers of grain look at both price and quality and compare alternative suppliers.

Congress and the administration have taken very positive action through the 1985 Food Security Act to make U.S. grain more price competitive which is starting to have a real impact on our volumes of export grain.

Grain Quality Workshops

To ensure that our price-competitive products also measure up in terms of quality, both Congress and the entire grain production and marketing system have taken concerted action. One of the most encouraging aspects of the

discussions on grain quality is the establishment in 1985 of the Grain Quality Workshops. These workshops are comprised of 22 grain producer, seed, grain industry, exporter, domestic processor, manufacturer organizations and university researchers. The purpose of the workshops is to jointly examine and discuss current grain standards and other grain quality issues in an effort to develop consensus recommendations on changes intended to enhance sales of U.S. grain. Since May 1986, the workshops have been coordinated by the National Grain and Feed Association.

Through these workshops, very frank and open discussions on all aspects of grain quality and the official grain inspection system have occurred. All segments of agriculture have benefited from these deliberations, as the understanding of the complexities involved in grain quality issues have become better understood by all.

It is important to stress that these workshops are far from "ivory tower" discussions. These workshops have come forward with many practical, effective and meaningful recommendatons for change, many of which have been or soon will be implemented. These items include:

-- a proposal that FGIS begin reporting dockage in wheat to the nearest one-tenth percent. This proposal was adopted by FGIS and became effective on May 1, 1987;

-- a proposal to report protein in wheat on a fixed 12 percent moisture basis. This, too was made effective May 1, 1987;

-- a recommendation that FGIS tighten insect tolerances for all grains. FGIS adopted tighter tolerances which will take effect May 1, 1988;

-- a proposal to evaluate the effect of separating broken corn and foreign material into two separate factors in the standards for corn. FGIS is undertaking an economic impact study and has adopted the workshop definition of broken kernels and foreign material.

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-- a recommendation that FGIS reconcile differences with the Food and Drug Administration (FDA) in its tolerances for infested samples of wheat. Those adjustments were made and become effective May 1, 1988;

-- a recommendation that FGIS develop end-use value tests to determine end-product yield and quality. FGIS currently is investigating technology to evaluate corn breakage, moisture variation, wheat kernel hardness, and soybean oil and protein content.

-- a recommendation that FGIS review the shiplot loading plan, known as the CU-SUM plan, for statistical validity and subjectivity. FGIS has conducted such a review and is in the process of formulating a proposal to revise the plan; and

-- other recommendations concerning wheat classification, control of corn breakage, foreign complaint procedures, and expanded grain quality education programs.

While these workshops have been useful in many ways, they have demonstrated that there are few clear-cut, easy answers to grain quality issues.

The grain standards provide a benchmark for customer quality requirements. One of the fundamental strengths of the U.S. Grain Standards is that they remain relatively stable and are widely understood. The Grain Standards are not changed radically or precipitously from year to year at the whim of a particular buyer or sector of the agricultural industry. Nor are they altered in response to transitory problems, isolated complaints or the peculiarities of a single crop year. The standards recognize that grain is a field crop and a living organism, and that variations in quality are to be expected, not shunned. Thus, grain cannot be described with the precision of a manufactured item.

Not surprisingly, we have discovered that higher quality -- so dependent

upon weather and crop growing conditions -- can rarely be accomplished without some cost. Whether borne by the farmer, the handler or the end user, the costs are very real.

Everyone in U.S. agriculture is committed to the need to expand markets for U.S.-grown grains. To accomplish that objective, we must be conscientious and responsive to customer needs and desires. When contemplating specific changes, however, their real impact upon expanding demand for U.S. grain and their relationship to the costs involved must be evaluated carefully to ensure such changes are justifiable. To make changes for changes' sake without a clear understanding of their overall market implication and the actual costs involved will only serve to erode the efficiency of our overall grain production and marketing system and our ability to compete effectively in terms of price. It is all too obvious that for any changes made to improve quality for which buyers are unwilling to pay full cost, those costs will be borne by the producer-marketing chain.

But this in no way implies that our grain standards are perfect. The needs of the marketplace can change over time and our standards should be subject to repeated scrutiny. The Grain Quality Workshops have provided an informal but organized atmosphere for such discussions to take place. Through this process, other public forums and FGIS rulemaking under the expanded policy mission of the Grain Quality Improvement Act, our system is today, more than ever before, in a position to recommend changes in U.S. Grain Standards that make sound economic sense for all segments of agriculture.

I will now direct my comments to legislation (H.R. 3940) introduced in the House of Representatives concerning grain quality by Rep. Jim Slattery of Kansas. Similar legislation (H.R. 3342) has been introduced by Rep. Douglas Bereuter of Nebraska. The operative provision of this legislation would require the Commodity Credit Corporation to offer discounts and premiums based

upon the quality of grain forfeited to CCC by producers or CCC-owned grain that is enhanced in quality by commercial warehousemen.

Rep. Slattery correctly has recognized that grain quality starts at the farm gate. CCC has an important role to play in ensuring that producers pledging grain as collateral recognize and appreciate the importance of maintaining grain quality. This is particularly important in today's marketplace, where extensive participation in the farm programs ensures that a vast majority of available grain stocks have been or will be derived from loan or reserve collateral forfeited into CCC's ownership.

As such, we believe CCC's premium and discount schedule should, to the maximum extent possible, reflect the market scale of premiums and discounts in effect or anticipated for the year for which the CCC schedules apply. The premiums and discounts determined in an open marketplace accurately reflect the price incentives that the market -- consisting of both buyers and sellers -- is willing to offer for selected quality factors and the price penalties the market assesses on less-desirable quality factors. In this respect, it is extremely important that CCC's premium and discount schedules be at levels sufficient to encourage prudent harvesting and on-farm storage practices by producers. Yet at the same time, CCC's premiums and discounts should not be so extreme or out-of-line with market scale premiums and discounts to falsely penalize producers for delivering grain that is of a quality that the market demands.

Based upon the input we have received from our grain storage, merchandising and handling industry members, we believe that CCC's current premium and discount schedule is in need of review. As the market changes to adjust to different types of grain demanded, premiums and discounts change constantly so that CCC premiums and discounts should be reviewed annually to reflect market conditions. In addition, we believe CCC should examine its discount schedule

to reflect the discounts on the range of quality factors assessed in the market.

We also think CCC should do a better job of making producers cognizant of its premium and discount schedules as soon as possible, preferably prior to planting and in no case later than the time at which a price support loan is obtained. It has been our experience that producers have varying degrees of awareness -- ranging from totally uninformed to fully informed -- about CCC's premium and discount schedules up to the time of loan settlement. At that point, CCC's discount schedule has lost its value as an incentive to influence grain planting, harvesting, storage, and handling practices of producers, at least as far as that particular crop is concerned. For this reason, we urge CCC to inform producers prior to or at the time the loan is issued about the premiums and discounts that will apply to the loan at settlement.

We do, however, oppose one section of Mr. Slattery's bill which would remove the term "dockage" from the U.S. standards for wheat. We find it ironic that this provision is included in the legislation, since those who have been involved in grain quality discussions recall that at one time in the not too distant past there was discussion of adding the term "dockage" to standards for other grains. Technical revisions to the standards, such as the use of the term "dockage," are best left to regulatory procedures where technical expertise can be submitted and assessed. We urge Congress to leave technical revisions such as this to the rulemaking process, where FGIS can rely on a consensus of opinion from all affected parties.

In short, the National Grain and Feed Association urges Congress to reauthorize the Grain Standards Act in its present form and, as such we support legislation to that end. Further, we support reauthorization for the period of 5 years as requested by Federal Grain Inspection Service. The service that FGIS provides benefits all of agriculture by making available

reliable, consistent grain quality evaluations. At the same time, FGIS is striving to adopt new technology and be responsive to a changing industry's needs. Since several of the most operative provisions of the Grain Quality Improvement Act of 1986 have yet to go into effect, we ask that no further revisions be made in order to allow those changes to be fully implemented and their impact assessed. Finally, we emphasize that the broad spectrum of industry participants are continuing to work together towards the goal of improving grain quality through the industry-sponsored Grain Quality Workshops. We will be happy to provide more information on workshop activities if you desire.

Mr. Chairman, I thank you for the opportunity to testify today, and stand ready to respond to any questions you or other members of the subcommittee may have.

Senator CONRAD. Well, now that I find out that some of you have been paying the expenses of those from the academic world, I wonder if you would be willing to pick up some of the expenses of the subcommittee.

Mr. HAWK. That might be difficult, sir.

Senator CONRAD. Thank you for your testimony. I think what we will do with this panel is go through and hear from each of you, then open it up to questions, and let you ask Kirk questions. Steve McCoy, executive director of the North American Export Grain Association.

STATEMENT OF STEVE McCOY, EXECUTIVE DIRECTOR, NORTH AMERICAN EXPORT GRAIN ASSOCIATION, WASHINGTON, DC

Mr. McCOY. Thank you, Mr. Chairman. It is a pleasure to be here. I would like to submit my prepared statement for the record and just make some brief comments.

I am impressed today, observing what has gone on, because I think it demonstrates that there is a high degree of consensus within agriculture on some of these issues.

The issues are very contentious. They have been emotional issues in the past. But the industry and the farm groups, and others, have been cooperating very effectively over the past couple of years.

I think Congress is owed a great deal of credit for bringing the issue forward, for making it a mandate, in effect, for the industry, and the——

Senator CONRAD. Do you want to repeat that. You are the first person—I have been here 16 months—and you are absolutely the first person who has said anything about giving Congress credit for anything.

Mr. McCOY. Mr. Chairman, I am happy to give Congress its due credit. I think there is an appropriate role for the Congress in these issues. I think the Congress this year, from what I can see, is showing restraint in terms of its legislation.

I think the Congress recognizes that this is a very technical issue, it is an issue that involves a considerable amount of technology, some technology which is only currently in the development phases.

It is an issue that involves a pattern of buying and selling throughout the world, involves markets internationally, not only in the United States, but in countries all over the world. It involves different kinds of agencies—private buyers and sellers, Government agencies, et cetera.

It is a critical issue. It is an issue that impinges on our competitiveness. And if you go back in the record to 1976 or so, you will find that, really, the significant issues that were considered in the late 1970's, that related to this issue, was the degree to which the grain standards, and our grain standards and inspection procedures could improve and enhance our competitiveness in international markets, with an eye to providing every incentive for the United States to be an active participant in markets.

And this is the view that my industry assumes. That we believe that, and we are happy to work with the Congress, and with

anyone, toward the development of economical and consensus-driven answers to some of the issues that can be divisive at times.

We believe, however, that the bottom line is this: that in order to maintain the integrity of the system we have to maintain the U.S. competitive advantage.

The U.S. competitive advantage is in its ability to move huge volumes of grain on time, on contract specification, all over the world. No other country in the world can match us in that capacity, and I think it is very important that we maintain that.

I will just leave it with that, and simply say that obviously the export-grain industry, together with everybody in this room—supports reauthorization of the FGIS. They have done a tremendous job. They have got a very difficult job. They are in between a whole host of opposed interests, and they also deserve a lot of credit for what they have been doing. Thank you.

[The prepared statement of Mr. McCoy follows:]

Testimony of
Steve McCoy, Executive Director
NORTH AMERICAN EXPORT GRAIN ASSOCIATION
Before the
SUBCOMMITTEE ON AGRICULTURAL RESEARCH AND GENERAL LEGISLATION
U.S. SENATE

April 29, 1988

It is a privelege to appear before you today in behalf of the North American Export Grain Association (NAEGA), an association representing the Nation's leading grain and oilseeds exporting companies.

NAEGA is pleased to support reauthorization of the Federal Grain Inspection Service (FGIS).

FGIS has faced significant challenges in recent years. In the face of such challenges, it has emerged a stronger, more efficient, more competent and responsive agency.

NAEGA has confidence that this evolution can continue. Achieving this objective will require:

(1) continued, capable leadership;
(2) enhanced public sector - private sector cooperation;
(3) attention to changing international markets and technology, and the maintenance of consistent, reliable and realistic policy in response to such change;
(4) a commitment to U.S. agricultural competitiveness and to U.S. opportunities to participate fully and fairly in international trade;
(5) a commitment to maintain FGIS' independence and integrity; and finally,
(6) full faith and confidence in the U.S. system and in the principle of private enterprise that is its essential characteristic.

NAEGA believes that FGIS currently possesses the necessary tools and direction by Congress to achieve the objective stated above. Consequently, we endorse the legislation requested by the Administration that would continue, but not alter or amend, the authority granted to the FGIS by Congress in the Grain Inspection Act of 1976, as amended, section 155 of the Omnibus Reconciliation Act of 1981, and P.L. 98-469.

Review of the Administration's Proposed Legislation

Legislation submitted to Congress by the Administration earlier this year would extend through September 30, 1993, authority requiring FGIS to collect user fees to cover administrative and supervisory costs associated with official grain inspection and weighing; invest sums collected from user fees; impose a 40 percent limitation on administrative and supervisory costs; and establish an Advisory Committee "to provide advice to the Administrator with respect to the efficient and economical implentation of the Grain Standards Act of 1976". The legislation also extends authorization for appropriations for standardization, compliance, and foreign monitoring activities.

NAEGA supports these provisions.

The limitation on administrative and supervisory costs associated with official grain inspection and weighing provides a built-in incentive to cost-effectiveness and efficiency, and should be continued.

In addition, NAEGA strongly supports reauthorization of the FGIS Advisory Committee. The Committee has proved to be an effective instrument of official communication between FGIS and the many elements of the agricultural community that are users of FGIS services. NAEGA believes that the composition of the Committee currently reflects an appropriate balance of farmers, processors, exporters, and other interests directly affected by FGIS regulations and activities. The user-based orientation of the current Committee assures that information provided to the FGIS by the Committee meets the Congressional mandate regarding "efficient and economical implementation" of the 1976 Act. Additionally, it assures the full and fair participation of all relevant interests in the development and implementation of FGIS policy and programs. It is an important element of the legislation, and facilitates a measure of cooperation between public and private sector interests that is critical to the success of the FGIS mission.

Public - Private Sector Cooperation

Indeed, a review of recent history serves to reinforce the impression that changes in grain quality practices and standards are best achieved that are achieved through voluntary cooperative effort involving the FGIS and private sector.

Since 1986, all elements of the U.S. agricultural community have been engaged in an ongoing effort to develop consensus recommendations addressing important quality issues. This effort -- a series of Grain Quality Workshops originally sponsored by NAEGA but more recently facilitated through the good offices of

the National Grain and Feed Association (NGFA) -- resulted in a breakthrough report entitled "Commitment to Quality" issued in June 1986.

The report contained six proposals for changes in policy in areas including dockage in wheat; protein in wheat, sorghum grades; soybean damage; representative sampling and barge loading; and separation of broken grain and foreign material in corn. In addition, the report offered recommendations in a wide number of other areas, including blending; grain dust disposition; shiplot loading plans; test weight determination; moisture meter calibration; end-use value tests; wheat classification; insect infestation; research and development; control of corn breakage; foreign complaint procedures; and education efforts.

The record of the past two years demonstrates conclusively the effectiveness of this voluntary effort as a mechanism for prudent, responsive, and economically sound improvement in our Nation's grain quality system.

Of the "Commitment to Quality" Report's six proposals, five have been subject to subsequent action or rule making by FGIS (those relating to dockage in wheat; protein in wheat; sorghum grades; soybean damage interpretation; and separation of broken grain and foreign material in corn). Action has also resulted from many of the report's other recomendations. Review continues on proposals and recommendations contained in the report that have not yet been subject to action. The Grain Quality Workshop process itself continues, providing a forum for dialogue and consensus-building among farmers, handlers, exporters, academicians, and government representatives. Implicit in the effort is an unfinished agenda that promises further improvement in our Nation's quality system. It is an agenda that should supported by Congress, as it has been supported by all segments of the agricultural community.

Foreign Quality Complaints

The Grain Quality Workshop process and the results that have been achieved by it offer concrete evidence of the progress that has been made in recent years towards greater public sector-private sector cooperation in quality matters. It is not the only evidence, however. Throughout the period, NAEGA and our Nation's grain and oilseeds exporting companies have continued their ongoing cooperative efforts with the U.S. government designed to meet and address foreign quality complaints.

It is important to note that foreign quality complaints have declined precipitously during the past year. During the current fiscal year, only 15 foreign complaints have been reported by FGIS, less than one fifth of the number of complaints reported in

fiscal year 1987.

In fiscal year 1987, complaints were reported on 3.5 million metric tons of grains and oilseeds exported from the United States, less than 3.7% of the 94.9 million metric tons of grains and oilseeds inspected and exported that year. If current trends continue -- and we are confident that they will -- it is likely that complaints will fail to reach even 1% of total tonnage inspected and exported during the current fiscal year.

This is an impressive record of current customer satisfaction with the quality of U.S. grains and oilseeds. It also tends to reinforce NAEGA's long held view -- based on practical experience -- that quality complaints increase during periods of sluggish demand, and, correspondingly, decrease during periods of demand growth (such as we are currently experiencing). Such a pattern suggests that price, rather than quality, is the significant factor determining customer satisfaction.

Nevertheless, NAEGA and the export grain companies continue to play an active role on the quality front. When complaints arise, we attend to them, both in cooperation with government and independently. Where possible, we cooperate with FGIS and FAS in addressing foreign complaints, through participation in missions overseas and other activities sponsored by government designed to address such problems. NAEGA's participation in one such recent effort -- a test shipment of wheat to the Soviet Union designed to prove the efficacy of U.S. fumigation technology -- is notable in that regard. The test shipment achieved a positive outcome both from the perspective of the Soviets and the United States. As a result of it, Soviet complaints regarding insect infestation have been reduced as a factor in the current trade environment and the Soviets, as you know, are purchasing record quantities of U.S. wheat this year.

Conclusion and Summary

Whether by act of Congress (as in 1981, 1984, 1985, and 1986), or by public sector - private sector cooperation (as witnessed by the Grain Quality Workshops and the Russian wheat test shipment), or by independent actions of exporters and others engaged in grains and oilseeds trade, the quality problem has been seriously addressed in recent years. The result has been an improvement in our Nation's quality system and greater foreign satisfaction in the quality of our grains and oilseeds exported abroad.

This is good news -- it proves that the current system is working. Congress deserves credit for giving appropriate attention to this issue in the past. It is now appropriate to allow the system to function without additional burden to FGIS and to other participants in the domestic and international grain

marketing environment.

Significant new responsibilities and programs have been added to the FGIS mandate during successive phases of legislative action since 1981. Time is now needed to see these new responsibilities and programs through to their intended purposes. Unprecedented public sector - private sector cooperation begun in 1986 is only now bearing fruit. U.S. exports of grains and oilseeds have only recently begun their recovery from the reversal experienced earlier in this decade. Foreign quality complaints are on the decline. Recognizing these factors -- and appreciating the need to assume a long-term perspective in matters of grain quality, standards, and trade -- NAEGA urges the Congress to show restraint with regard to further significant changes in the FGIS mandate, as Congress approaches the task of reauthorizing the Federal Grain Inspection Service.

Senator CONRAD. Thank you very much. Next we will hear from Lawrence Neumann, director of the National Grain Trade Council and also president of grain marketing for the Benson-Quinn Co. I want to just say, for the record, that yesterday, Larry was kind enough to spend a good chunk of time with me talking about some of these issues, and I enjoyed our conversation very much. Lawrence, please proceed.

STATEMENT OF LAWRENCE N. NEUMANN, DIRECTOR, NATIONAL GRAIN TRADE COUNCIL AND PRESIDENT, GRAIN MARKETING, BENSON-QUINN CO., MINNEAPOLIS, MN

Mr. NEUMANN. Thank you, Mr. Chairman.

We appreciate the opportunity to testify before you today. It has been a long morning and I will summarize my formal statement and ask that my written statement be included in the record.

Senator CONRAD. Without objection.

Mr. NEUMANN. The key points that I will make are: First, the reclassification issue continues to pose a problem.

Second, the future needs for a change in grain grading are highly dependent on available technology and also market needs.

Third, we are supportive that FGIS be reauthorized.

In the Upper Midwest, Mr. Chairman, the area which you and I are most familiar with, the wheat classification issue continues to pose a problem. In this area, most wheat producers grow Hard Red Spring wheat, a wheat with high protein content that demands a premium in the marketplace.

However, with newer varieties that are being developed through extensive cross-breeding between classes, it is almost impossible to visually distinguish between the classes based on traditional kernel characteristics.

The previous speakers have already discussed the importance of cooperative efforts between trade, farm groups, academics, and Government. This is being illustrated also in the wheat classification area. FGIS appointed a wheat classification working group in 1986 to address this problem.

The working group is making progress on this issue and it appears we may eventually have a procedure to objectively differentiate between hard and soft wheats. It is proving more difficult to develop a method to distinguish between Hard Red Spring and Hard Red Winter wheat.

This is a good example that you can only make progress to the extent that technology is available to provide consistent, reliable, and uniform results.

The machines must be able to work well in places that are not ideal laboratory settings. They must also be available at a reasonable cost.

As we think about possible ways to improve the way we measure grain quality, we must also remember this basic criteria. I should also point out that the research into new technology is underway within FGIS and in land-grant colleges.

There are many projects underway, but we must remember that new measurements must fulfill a market need, or they will be superfluous and may actually get into the way.

To take an extreme, let us assume we develop five new tests for measuring types of quality attributes in wheat, but each of these tests are really only needed by about 5 percent of the customers, and each in a different geographic area of the Nation.

It really would not make sense to require that each of these five tests be part of the grain standards and be performed on each lot of wheat officially inspected in the Nation.

That would be burdensome and cumbersome to the system. It would be far more practical for those users who want precise quality attributes to specify that in their contract.

The role of grain standards should be to facilitate simple orderly grain marketing.

I hope that you will take time to look over the information in the appendix of my written statement, and see the progress and the projects underway on the many recommendations of the grain quality workshops.

The National Grain Trade Council has supported and participated in workshops since they began. We believe that working together with farm groups and Government in a cooperative effort is the best way to reach agreement on the needed changes.

Mr. Chairman, I will close with a few comments about the purpose of this hearing, the reauthorization of FGIS.

The Council does support the reauthorization of FGIS. I doubt there is any real objection for the need of the services FGIS provides, the objective and uniform grading and weighing of grain.

Accurate grades upon which buyers and sellers can rely are critical to the orderly marketing of grain, both domestically and abroad. We must remember, though, that FGIS's role is not that of an advocate. It is one of an impartial arbitrator.

FGIS is a rather unique Government agency. It receives 85 percent of its funding from users. Because we pay the bill, we are interested in seeing FGIS be a cost-effective and efficient organization, as we believe it is.

FGIS has weathered some tough times as its revenues fell along with export volume, but it met the challenge while providing needed services.

I am personally concerned that if FGIS's charter is changed to include a lot of exotic services, costs will escalate to where it would become an unaffordable agency.

We would encourage FGIS to review its fee level in the near future. As export volume rebounds, FGIS may be able to trim its fees. In many locations, FGIS fees are a substantial cost component in merchandising grain.

The FGIS fees, for example, will often be more than stevedoring costs at export location.

In summary, Mr. Chairman, we believe FGIS is doing a good job. We do occasionally have disagreements, but that is natural.

We do feel they provide uniform grain inspection which the system can rely on, and that they have been efficiently managed. Thank you.

[The prepared statement of Mr. Neumann, with attached appendix, follow:]

STATEMENT OF

LAWRENCE N. NEUMANN
PRESIDENT OF GRAIN MARKETING
BENSON-QUINN CO.

REPRESENTING THE
NATIONAL GRAIN TRADE COUNCIL

BEFORE THE
SUBCOMMITTEE ON AGRICULTURE RESEARCH
AND GENERAL LEGISLATION
COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY
UNITED STATES SENATE

ON
REAUTHORIZATION OF THE
FEDERAL GRAIN INSPECTION SERVICE

APRIL 29, 1988

Mr. Chairman and Members of the Subcommittee:

My name is Lawrence N. Neumann. I am president of grain marketing for the Benson-Quinn Co., a regional grain merchandising firm headquartered in Minneapolis, Minnesota.

I appear before you today representing the National Grain Trade Council. I am a member of the Council's Board of Directors. We appreciate this opportunity to share our views on reauthorization of the Federal Grain Inspection Service (FGIS).

The Council is a national trade association whose regular members include grain exchanges, boards of trade, and national grain marketing organizations. The Council's associate members represent a broad spectrum of the grain marketing industry, including grain companies and related businesses.

In my testimony today, I will make the following points:

1. The Federal Grain Inspection Service should be reauthorized;

2. The Grain Quality Workshops continue to play an important role in encouraging dialogue between interested parties;

3. Considerable progress has been made in addressing grain quality issues and further changes should await evaluation of the steps that have already been made; and

4. Further work remains on the wheat classification dilemma.

FGIS Should be Reauthorized

The Council supports reauthorization of the Federal Grain Inspection Service. FGIS was established in accordance with the provisions of the U.S. Grain Standards Act of 1976, to administer that Act and to perform official inspection and weighing at export port locations and to supervise official inspection and weighing at domestic locations.

We do not believe there is any real question on the need for the services FGIS provides or supervises: the objective and uniform grading and weighing of grain. Accurate grades upon which buyers and sellers can rely are critical to the orderly marketing of grain, both domestically and abroad. We believe the national inspection system under the auspices of FGIS as the impartial arbiter accomplishes that purpose.

The Omnibus Reconciliation Act of 1981 provided FGIS with authority to increase the fees charged to the industry to recover the costs of supervisory activities, in addition to recovering the actual cost of inspection and weighing. That legislation also: (1) limited total FGIS administrative and supervisory cost to 35 percent of the total cost for inspection and weighing programs; (2) authorized the use of appro-

priated funds to cover the cost of FGIS standardization, compliance, and international monitoring programs; and (3) established an advisory committee with members representing all segments of the grain marketing industry.

The Council testified before a Subcommittee of the Senate Committee on Agriculture, Nutrition, and Forestry in 1984 in support of reauthorization of FGIS. We did not object to raising the cap on administrative and supervisory costs to 40 percent, which was adopted. The Council supported continuation of the advisory committee. We continue to support those aspects of the legislation proposed by the Administration.

FGIS is a rather unique government agency. It receives roughly 85 percent of its funding from user fees. We believe it is appropriate that safeguards remain within the legislation to promote cost effective and efficient operations. We do, therefore, support the 40 percent cap on administrative and supervisory costs as contained in the proposal.

The Council also supports continuation of the FGIS Advisory Committee, as proposed by the Administration. We believe the advisory committee plays an important role in facilitating communication between producers and industry and FGIS. The advisory committee has contributed to the constructive working relationship that has evolved between FGIS and all segments of the grain marketing industry, replacing an adversarial relationship that existed in the not-so-distant past.

When the Council testified in 1984, we told the Subcommittee that FGIS had made great strides in improving its cost effectiveness and efficiency. We are pleased to report that we continue to believe FGIS is operated in this fashion. As a comparison, in 1981 FGIS expenses totaled $57 million and it had 1,778 employees. In 1987, FGIS expenses were $36.2 million and it had 690 employees. The agency's 1989 budget request totals $45.1 million, of which $36.9 million is from user fees and $8.2 million is from appropriated funds.

FGIS has run an administratively tight program, while providing needed services, in challenging times as agency revenues fell with export volume. We would encourage FGIS to continue this management policy and would suggest it may soon again be appropriate to review fee levels. As export volume rebounds, FGIS may be able to trim its fees. In many locations, FGIS fees are a substantial cost component in merchandising grain. The FGIS fees, for example, will often be more than the stevedoring costs at export locations.

Grain Quality Workshops Play Important Role

The Council believes the Grain Quality Workshops continue to play an important role in encouraging a constructive dialogue between interested parties. The workshops were organized in

response to growing concerns over grain quality that began in 1985. In calendar years 1984 and 1985 grain export volume dropped significantly from earlier record tonnage. With this drop in export volume, critics began asserting that a principal reason for the drop was the quality of U.S. grain exports.

Against this backdrop of growing concern, the Grain Quality Workshops began meeting in 1986. The workshops were an unparalleled effort between the trade, farm groups, and academics to review quality issues and arrive at consensus recommendations for change. The workshops led to a constructive dialogue and understanding of the many complexities involved in the issue that helped build a positive working relationship among the participants.

The workshop participants were able to reach agreement on a number of areas to improve grain quality. The breadth of the changes and the consensus approach were unprecedented. In June 1986, the group issued its report, titled "Commitment to Quality." The report recommended six specific proposals for change and 13 recommendations for further study or review. These recommendations were formally presented to FGIS by the workshop group in June 1986.

As the workshop group endeavored to address these issues, Congressional initiatives to address grain quality were also moving ahead. As part of the Food Security Act of 1985, Congress directed the Office of Technology Assessment to conduct a comprehensive report on grain quality issues. Congressional concern continued in 1986 and resulted in passage of the Grain Quality Improvement Act (GQIA).

The provisions of the GQIA were similar to some of the recommendations of the Grain Quality Workshops. Appended to this statement is a summary of the workshop proposals along with a brief update on action taken since the proposals were first made. Interwoven with the actions taken on the quality issues are the actions which resulted from the GQIA.

The Council believes this summary illustrates the high degree of activity that has taken place to address quality issues. The major recommendations of the workshop have seen positive action, although some work remains, particularly regarding research areas.

Further Changes Should Await an Evaluation of Current Actions

Legislation has been introduced in the House of Representatives to make further changes in the U.S. grain standards. We believe it would be premature to proceed with any further legislative initiatives to address grain quality, until the steps that have been or are being taken can be evaluated.

The workshop recommendations, FGIS actions, and the GQIA have resulted in more changes to the grain standards and procedures in the past year than has probably occurred in the previous 50 years. It seems only prudent to evaluate those steps as they are implemented to judge their effectiveness in addressing problem areas.

Work Remains on Wheat Classification

As you probably know, Mr. Chairman, wheat classification has become a particular problem. The problem stems from some new varieties that do not exhibit traditional kernel characteristics. These newer varieties, developed through extensive cross-breeding between classes, are almost impossible to distinguish by visual means.

This problem came to a boil in 1986 when FGIS issued a memorandum instructing inspectors to class wheat using traditional kernel characteristics (in accordance with current standards and written grading instructions). This was interpreted as a change in policy, with classing not related to the marketing area. FGIS quickly issued an "interim procedure" which stated it will class nontraditional hard wheats based on marketing area and intended class rather than kernel characteristics.

Since that time the industry, farm groups, academics, and government have worked together in a Wheat Classification Working Group to develop a long-term solution to the problem using objective testing procedures. The Working Group has made considerable progress in addressing the issue and research underway may eventually lead to a method for distinguishing between Hard Red Winter (HRW) and Soft Red Winter (SRW) wheats.

Progress is also being made with research to differentiate between HRW and Hard Red Spring (HRS) wheats, however this is proving to be more elusive to resolve.

The FGIS interim procedure remains in place today and we are not aware of any significant marketing or inspection problems that have occurred since 1986. Yet, it is important that this research effort continue to develop a long-term, not an interim, procedure for classing wheats.

The National Grain Trade Council is committed to a classifcation system that preserves the current wheat classes.

Conclusion

One common thread that runs through the efforts of the Grain Quality Workshops and the Wheat Classification Working Group is the ability of the different segments of the grain market-

ing industry to work together in resolving problems. We believe those efforts clearly demonstrate the willingness of the grain industry, farm groups, academics, and FGIS to address issues and reach decisions for action in a consensus manner.

As we mentioned in the beginning of our statement, the falling export volume in 1984 and 1985 led some to assert that a principal reason for the declining exports was the quality of U.S. grain. U.S. grain exports have rebounded significantly since that time due to the growing competitiveness of U.S. grains with the 1985 Food Security Act.

We have observed that complaints by foreign buyers tend to increase in a buyer's market. We are pleased to note that the number of foreign complaints for fiscal year 1988 to-date are down substantially from last year. FGIS has received 15 complaints for the current year to-date, compared to 36 for the same period last year. We should point out that of the 36 complaints for this time last year, 13 concerned wheat protein. FGIS has since addressed that problem and complaints in this area have become virtually non-existent.

On a more philosophical note, there will always be some in agriculture who will contend the grain standards should be more restrictive, despite the best efforts of farm groups, the grain trade, and academics. We would repeat the old cliche, "there is no free lunch." Quality has an economic value. Tighter and more restrictive grain quality standards carry a price tag; it is a price producers will ultimately bear.

Appendix follows:

APPENDIX: Specific Proposals for Change and Recommendations for Other Changes and Studies from the "Commitment to Quality" Report of the Grain Quality Workshops with an Update of Actions Taken Since the Report Was Issued

Specific Proposals for Change

1. Dockage in wheat: the workshop recommended wheat dockage should be reported in increments of one-tenth. FGIS issued a final rule making this change which was effective on May 1, 1987.

2. Wheat protein: the workshop recommended wheat protein should be reported on a fixed moisture basis of 12.0 percent. FGIS issued a final rule making this change which was effective on May 1, 1987.

3. Sorghum grade changes: the workshop recommended broken kernels and foreign material in grain sorghum should be reported as two separate grade determining factors with the tolerances reduced and the percentage of brown kernels allowed in yellow sorghum should be reduced from 10.0 percent to 3.0 percent. FGIS issued a final rule creating separate definitions for broken kernels and foreign material in sorghum effective July 30, 1987. Broken kernels and foreign material (BNFM) will continue to be the grade determining factor, but the amounts of broken kernels and foreign material will be shown as separate informational factors on the inspection certificate for domestic shipments and on the inspection log for export shipments.

4. Soybean damage interpretation: the workshop recommended FGIS should tighten its interpretation of damage in soybeans. FGIS changed its inspection procedure to tighten this interpretation on September 1, 1986.

5. Representative sampling: the workshop recommended an official white certificate should only be issued when based on samples that are representative of the entire container and are collected using approved methods. This issue is now being addressed by an industry association.

6. BCFM in corn: the workshop recommended that, subject to an in-depth economic impact study, broken corn and foreign material should be separated when grading corn. As with grain sorghum, FGIS issued a final rule establishing separate definitions for broken corn and foreign material (BCFM) effective July 30, 1987. BCFM will continue to be the grade determining factor, but the amounts of BC and FM will be shown as

separate informational factors on the inspection certificate for domestic shipments and on the inspection log for export shipments.

Recommendations for Further Study or Review

1. Blending: the workshop recommended operating guidelines and trading rules should limit the moisture spread in blending to a maximum of 4.0 percentage points, with the higher end of the spread no more than 2.0 percentage points over the contract limits. Research is needed to determine if the present standards are adequately restricting the entry of unusually objectionable damage or foreign substances into the export market.

2. Grain dust: the workshop recommended the impact of prohibiting the recombination of grain dust back into the grain stream should be immediately studied. This recommendation was carried a step further by the Grain Quality Improvement Act of 1986. The GQIA prohibits (1) dockage or foreign material once removed from grain from being recombined with any grain; (2) dockage or foreign material from being added to grain; and (3) reintroduction of dust to grain once removed. FGIS issued rules to implement these provisions and the prohibition against recombining dockage and foreign material which were effective January 1, 1988 at export facilities. The prohibition against recombining dust at export facilities was effective July 30, 1987.

3. Shiplot loading plans: the workshop recommended that loading plans, such as Cu-Sum and the Protein Uniformity Inspection Plan (PUIP) should be objectively reviewed. FGIS contracted with an outside consultant to review the Cu-Sum shiploading plan. We understand FGIS is developing proposed revisions to the plan that would incorporate PUIP.

4. Test weight: the workshop recommended FGIS should re-evaluate the method of determining test weight to make results more representative of grain density in storage. FGIS has requested that the Agricultural Research Service of USDA conduct basic research on grain weight analysis.

5. Moisture meter calibration: the workshop recommended appropriate State and Federal agencies should adopt the same set of moisture meter calibrations for each grain. FGIS is in the process of developing uniform meter calibrations and will in the future be able to provide calibration charts for different types of meters, assuring consistency in results.

6. End-use value tests: the workshop recommended FGIS should develop practical tests and methods meaningful in determining end-product yield and quality; these tests would be offered as optional official criteria as requested. FGIS has research underway to measure end use properties for soybeans, corn, wheat, and barley. For soybeans, FGIS will be field testing an NIR procedure to determine oil and protein content, and is analyzing data for measuring free fatty acid content. FGIS is researching technology to measure oil and protein, and perhaps starch, in corn using the NIR. For wheat, FGIS is researching a determination of alpha amylase levels as a means of measuring sprout damage. FGIS is also evaluating procedures for measuring protein content in barley.

7. Wheat classification: the workshop recommended FGIS should develop a practical method of identification of wheat classes other than by visual kernel characteristics. FGIS has a research project underway to develop an objective procedure for classing wheat. This subject is discussed more fully elsewhere in this statement.

8. Insect infestation: the workshop recommended FGIS should review and change some portions of the tolerances for insect infestation in grain. The GQIA also addressed this issue, directing FGIS to change the insect tolerances to more accurately describe the level of infestation in grain. FGIS has issued a final rule that is effective May 1, 1988 which substantially tightened the infestation tolerances. Under the new rule, a feed grain sample will be graded infested when it contains two or more live weevils and a food grain sample will be graded infested when it contains two or more live insects injurious to grain.

9. Research and development: the workshop recommended USDA through its research agencies should place a higher priority on post-harvest quality. FGIS has established an in-house research committee which recommends priorities for FGIS research projects. FGIS also appointed an external committee to evaluate the Agency's scientific orientation to identify areas where FGIS needs to improve its science capabilities.

10. Corn breakage: the workshop recommended the grain industry and educational agencies should promote management practices which control the development of stress cracks in corn. We understand that a research project in the area of corn breakage is now under consideration. FGIS is in the process of addressing this issue and has received an outside evaluation of a procedure for measuring breakage susceptibility.

11. Foreign complaint procedures: the workshop recommended USDA should improve its foreign complaint procedure to provide more timely notification to seller and shipper. FGIS has implemented the recommended procedures to assure more timely handling of foreign complaints.

12. Education programs: the workshop recommended educational programs should be expanded to emphasize the availability to the foreign buyer of the wide range of grain quality options available through the U.S. grain grading system. Market development cooperator organizations and FGIS provide such programs on an on-going basis.

13. Continuation of workshop efforts: the workshop recommended the group should continue on a on-going basis and meet at least semi-annually. The group has continued to meet on a semi-annual basis.

Senator CONRAD. Thank you very much. That is an important set of points that were made and good testimony as to the management that has been provided at the Federal Grain Inspection Service. I think that reflects well on the current management and ought to be noted for the record.

Mr. NEUMANN. Thank you.

Senator CONRAD. One of the questions that I have had is: How does our fee structure compare to what we are seeing in our competitors? How do we compare? Do we have any judgment on that?

Mr. MILLER. I am advised by my staff that we really do not. I do not know if Dr. Phillips, as a part of their study, would have anything to offer in that regard, but I cannot offer you any counsel this morning.

Senator CONRAD. They do not have that kind of comparison, either, apparently. That is one of the things we have been interested in. Obviously, if there is any significant difference, that might be an item that we would want to look into.

The sense I am getting from this panel is that they find the fee structure is reasonable. Larry, I hear you saying that if FGIS had a surplus, we would like to see the user fees go down, which is always the case. Kirk, any response to that? Obviously our export volumes are surging. Is there room for some trimming?

Mr. MILLER. As I indicated in the formal comments which were filed for the record this morning, we are evaluating our current fee structure to make the determination if in fact we can lower the fees.

As we indicated, we are trying to keep about a 3-month operating reserve for each one of our fund accounts. Our current fund account for the original inspection and weighing, if they are combined, amounts to about a 2.8 month reserve. We are very close to that 3-month reserve that we would like to consider as a minimum. With the projected continuation of the strong export trade throughout the rest of the year, we think that there may be a possibility that by this summer we will be able to propose a fee decrease, not only for that account but possibly for some of the other programs that we operate.

Senator CONRAD. All right. Any other response that you would want to make from anything you heard from members of this panel? There was some stress, again, on the wheat classification system.

Of course that is an issue near and dear to my heart. I think you have talked some about that already. We also had some talk about grain grading technology. Lawrence put some focus on that.

Any of these items that you would want to further expand upon?

Mr. MILLER. Well, the one concept that I have not really fully elaborated on this morning is the concept that any of the changes that we may undertake in the next months and years need to be weighed in consideration of the benefit that is going to be derived by the eventual end-user and to the system versus the cost that is going to be incurred by the people that are making the changes. We really have not dwelled on that issue this morning.

But, as we look at a number of the changes we have talked about, there is certainly that type of economic assessment that needs to be made. We are in the process, right now, of revising the

CU-SUM plan, and we are doing it in such a manner that we incorporate economic analysis in our evaluation. We will continue to incorporate economic analyses on changes that need to be addressed in the coming months and years.

Senator CONRAD. All right. I would probably be derelict if I did not ask this panel for their views on the makeup of the Advisory Committee.

We have heard a lot of talk about that here this morning, and if any of you have an observation on that, we would be glad to hear it.

Mr. MCCOY. Mr. Chairman, I think that first of all, the attention that is being paid to the Advisory Committee this year took a lot of people by surprise, and I think if Congress is truly interested in improving the process through making changes in the committee, then its interests will be supported in that manner.

I think that FGIS has well stated the problem and we have to clearly differentiate in terms of whether or not it is the decisions that the FGIS Advisory Committee is making that is the problem, or it is the makeup.

For example, the decision that was referred to a little bit earlier on, as has been pointed out, was a unanimous decision involving exporters, farmers, et cetera, and in my personal experience, has been of the committee, that the farmers and the exporters and the others work extremely well, there is a consensus-based group, and it is a very good group in terms of their technical expertise.

If the group is to be expanded and broadened, I would simply hope that due care and attention would be made to ensure that the people who would be selected for serving on the committee are of the same high competence and technical capability of the current membership.

Senator CONRAD. We will accept that observation, and I would assure you that Congress is not going to be choosing the membership, but I do think we want to be sensitive to what we have heard, and there seems to be some consensus emerging that we ought to have a little more producer representation, and a little more representation from the academic world.

And we want to be very careful about how that is done so that we do not expand the size of the group to a level that is inefficient. We will be very sensitive to those issues.

Lawrence, did you want to make any further remarks?

Mr. NEUMANN. No, Mr. Chairman.

Senator CONRAD. All right. Anything else that you want to say, Kirk, for the record, before we close the hearing? I think it has been a very good hearing from my perspective. We certainly have heard a range of views and had some recommendations that are very specific, and I think helpful.

Any observation that you would want to make?

Mr. MILLER. Mr. Chairman, I would like to thank you for the manner in which you conducted the hearing this morning. I must confess, that when I stayed around after my testimony on the panel, I had not expected to be called back up to participate and respond to these other panels. I appreciate the opportunity to do that, and I certainly, again, want to thank you and all the folks who have complimented the agency this morning.

Again, I take the credit on behalf of the many hard-working people in the agency, but we really know who does the work in the agency, and they deserve the credit. I think we are in the process of making changes.

One comment I would like to make is that sometimes I feel that the person in this job should be a behavioral scientist rather than an agriculture economist. Quite frankly, many of the things that we deal with are attitudes and perceptions, and the composition of different people's personalities. But so far we have had excellent cooperation from all of the industry and producer groups, and from Congress. We certainly appreciate that.

We look forward to working with you and moving this legislation along.

Senator CONRAD. We look forward to working with you as well. Again, I want to emphasize that we feel strongly that you have been doing a good job.

You have worked hard at this, and I think in very good faith, and again, have been willing to listen to divergent views. That is terribly important in this business.

I think as you say, many times it is a matter of dealing with divergent personalities, and trying to be sensitive to the things that people are bringing to the table.

What we have heard from all sides here today, is reasonableness. I must say I want to compliment everyone who has participated here today for being substantive and reasonable and rational. I think that advances the cause, and again, I want to thank everyone, and I especially want to thank you, Kirk, for your willingness to participate in this way. It is a little unusual.

I remember being an administrator, though, and sitting there as you were sitting, and having people say things and not getting a chance to respond, and I always felt, gee, I would like a chance to participate a little more fully and get a chance to respond to some of these things.

So we have tried to do that here today and it has been valuable to me, and valuable to the committee, and I want to thank you all.

With that, we will conclude the hearing, and just indicate that we will leave the record open for 2 weeks for further questions and answers to those questions, and again, I thank all who have participated.

[Whereupon, at 11:40 a.m., the subcommittee adjourned, subject to the call of the Chair.]

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